

# **EXHIBIT 1**

**REDACTED VERSION**

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**IN THE UNITED STATES DISTRICT COURT  
FOR THE NORTHERN DISTRICT OF CALIFORNIA**

ANIBAL RODRIGUEZ, SAL CATALDO,  
JULIAN SANTIAGO, and SUSAN LYNN  
HARVEY, individually and on behalf of  
all similarly situated,

Plaintiffs,

v.

GOOGLE LLC,

Defendant.

**Case No. 3:20-cv-04688-RS**

**EXPERT REPORT OF DONNA L. HOFFMAN**

May 31, 2023

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**I. QUALIFICATIONS**

1. My name is Donna L. Hoffman. I am a Full Professor of Marketing at The George Washington University School of Business. I am the holder of the endowed chair, titled the Louis Rosenfeld Distinguished Scholar, at The George Washington University.
2. I co-founded and co-direct the Center for the Connected Consumer at The George Washington University School of Business. The Center is supported by university and foundation grants and corporate gifts. Previously, as a professor at Vanderbilt University and the University of California, Riverside, I co-founded and co-directed for ten years the Sloan Center for Internet Retailing, supported by a grant from the Alfred P. Sloan Foundation in New York City, a university grant, and corporate gifts. I have also co-founded and co-directed the first academic center for electronic commerce in the United States, called eLab.<sup>1</sup>
3. The principal focus of my research over the past two decades has been in the area of the online consumer experience, including analysis of consumer behavior in new media and technology environments, such as social media and the Internet of Things. My research has also been concerned with digital commerce strategy, the social and policy implications of the commercialization of the Internet, and more recently, artificial intelligence.
4. I am the author of 87 papers, including articles published in leading academic journals such as the *Harvard Business Review*, *Sloan Management Review*, *Science*, *Marketing Science*, *Management Science*, *Journal of Marketing Research*, *Journal of Marketing*, *Journal of Consumer Research*, and *Journal of Consumer Psychology*, among many others, along with chapters in books. I am the co-editor of the book *Beyond the Basics: Research-Based Rules for Internet Retailing Advantage*. My publications also include working papers and technical reports as well as a number of articles I have published in the popular press, including *Wired*, *HotWired*, *MicroTimes* and *Information Impact Magazine*. I am on or have previously served on the editorial boards of the top marketing

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<sup>1</sup> “Hoffman and Novak named ‘Distinguished Graduate Alumni,’” *Vanderbilt University*, June 6, 2003, available at <https://news.vanderbilt.edu/2003/06/06/hoffman-and-novak-named-145distinguished-graduate-alumni146-59977/>.

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journals in the world. Currently, I am an Associate Editor (AE), of the Journal of the Marketing; I just completed an AE term at the Journal of Consumer research, and was a guest AE for the Journal of Marketing Research. Additionally, I have served as Co-Editor for special issues in the Journal of Marketing, Information Systems Research, Marketing Science, and the Journal of Interactive Marketing. In addition to these editorial duties, I also serve on the Editorial Boards of the Journal of Consumer Psychology, Journal of Consumer Research, Journal of Marketing, and Journal of Marketing Research, among others.

5. In the course of my research, teaching and editorial responsibilities, I have become familiar with the body of research on online consumer behavior, particularly as it relates to online consumer experience, as well as Internet retailing and Internet marketing.
6. I have worked with major corporations on the topic of digital marketing strategy and online consumer experience, including Procter & Gamble, Intel, Microsoft, FedEx.com, Land’s End/Sears, Walmart.com, and CBS Interactive, among many others. I have also served as an Academic Trustee of the Marketing Science Institute and as a member of the Procter & Gamble Digital Advisory Board.
7. My research has been funded by the Alfred P. Sloan Foundation, the National Science Foundation, the Marketing Science Institute, Google/WPP, and the University of Pennsylvania Future Of Advertising Center/Wharton Customer Analytics Initiative. I am a recipient of several of the marketing field’s most prestigious research awards, including being named a Fellow of the Society for Consumer Psychology, the Robert B. Clarke Educator of the Year Award from Marketing EDGE (formerly the DMEF), the Sheth Foundation/Journal of Marketing Award for long-term contributions to the discipline of marketing, the Stellner Distinguished Scholar Award from the University of Illinois, the William O’Dell/Journal of Marketing Research Award for long-term research impact, and the Robert D. Buzzell Marketing Science Institute Best Paper Award Honorable Mention.
8. I have won several other awards in connection with my research. I was voted the top Internet Scientist by over 600 U.S. and European scientists and marketing managers in a

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survey conducted by the ProfNet Institute for Internet Marketing in Dortmund, Germany. In the past, my research was cited as an “Emerging Research Front” in the entire field of Economics and Business by the ISI Essential Science Indicators, and I was cited by ISI Essential Science Indicators for the highest percentage increase in total citations to my research in the entire field of Economics and Business.

9. As of May 22, 2023, my Google Scholar citation count was 37,441. Fifteen of my published articles have been cited over 500 times and 38 of my published articles have been cited at least 100 times. Two of my research articles are among the most cited articles in the journals in which they appear. My 1996 *Journal of Marketing* paper on consumer experience on the Internet is the most widely cited paper in that journal from 1995 to 2007 and the number one most cited paper in the entire marketing discipline between 1990 and 2002.<sup>2</sup> My 2000 *Marketing Science* paper on customer experience in online environments is one of the of “all time most highly cited articles” and the top article in terms of “all time citations per year in *Marketing Science*,<sup>3</sup> as well as the 14<sup>th</sup> most cited paper in the entire marketing discipline between 1990-2002.<sup>4</sup>
10. I received the EDSF Excellence in Education Award for Innovation in Higher Education (sponsored by Xerox) for my work establishing the eLab virtual behavioral laboratory and eLab has received a commendation from the Association to Advance Collegiate Schools of Business (AACSB) for “International Effective Practice.” I co-created, co-launched and directed the first formal MBA curricular concentration in the world for the study of electronic commerce at a business school while I was a professor at Vanderbilt University. The *New York Times* called my pioneering effort “one of the premier research centers in the world for the study of electronic commerce” and the *Wall Street Journal* recognizes the effort as the “electronic commerce pioneer among business schools.” I also taught the first MBA course on Internet marketing at a business school. I have

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<sup>2</sup> Stremersch, Stefan, Isabel Verniers, and Peter C. Verhoef, “The Quest for Citations: Drivers of Article Impact,” *Journal of Marketing*, Vol. 71 (July 2007): 171-193.

<sup>3</sup> Shugan, Steven M., “Editorial: Introduction to the Special Classics Issue,” *Marketing Science*, Vol. 27, No. 1 (Jan.-Feb. 2008): 9-11.

<sup>4</sup> Stremersch, Stefan, Isabel Verniers, and Peter C. Verhoef, “The Quest for Citations: Drivers of Article Impact,” *Journal of Marketing*, Vol. 71 (July 2007): 171-193.

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created and taught courses in Internet Marketing Strategy, Digital Commerce Strategy, Managing the Customer Chain, AI and Marketing Strategy, and Marketing Strategy Analytics.

11. I have received media citations from *Newsweek* (as one of the 50 people who matter most on the Internet), *Advertising Age* (as a Web warrior), *Internet World* (as an Internet Hero), *MicroTimes* (as one of the *MicroTimes* 100), and San Francisco Webgirls (as one of the top 25 women on the Web).
12. I hold a Ph.D. from the L.L. Thurstone Psychometric Laboratory of the University of North Carolina at Chapel Hill with a formal minor in marketing. My primary formal training is in quantitative psychology, a field of behavioral science focused on the quantification and measurement of human cognition and behavior. In 2002, the University of North Carolina named me a Distinguished Graduate Alum in honor of their Centennial. Before joining The George Washington University, I was a faculty member at Columbia University, the University of Texas, Vanderbilt University and the University of California. I have also served as a visiting scholar at UCLA, Stanford, USC, and UCSD. A complete list of my professional qualifications, publications, affiliations and expert witness testimony are described in my curriculum vitae, which is attached as **Appendix A**.
13. I am being compensated for my work on behalf of Google at the rate of \$1,050 per hour. Employees of Analysis Group, an economic research and consulting firm, working under my direction, have assisted me in this assignment. No compensation is contingent upon the nature of my findings or on the outcome of this litigation.

## **II. ALLEGATIONS AND ASSIGNMENT**

### **A. Allegations**

14. The named Plaintiffs in this case are Anibal Rodriguez, Sal Cataldo, Julian Santiago, and Susan Lynn Harvey<sup>5</sup> representing a putative class of “individuals who had WAA turned

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<sup>5</sup> Fourth Amended Complaint, Anibal Rodriguez et al. v. Google LLC, United States District Court of the Northern District of California, Case No. 3:20-CV-04688, January 4, 2023 (“Complaint”), ¶¶ 18-21.



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off but whose devices nonetheless transmitted data to Google as a result of Google tracking and advertising code embedded within non-Google apps (including but not limited to Firebase SDK scripts).<sup>6</sup> The Class Period is defined from “the date Google first received data, as a result of Google tracking and advertising code, from the device of a user who had turned off WAA and/or sWAA”<sup>7</sup> through the present.<sup>8</sup>

15. Plaintiffs claim that Google intercepts, collects, saves and uses “consumers’ highly personal browsing histories on their mobile devices” whenever users use certain apps that incorporate Google code, without notice and consent from users.<sup>9</sup> Specifically, Plaintiffs allege that Google “surreptitiously collected users’ personal data from their mobile devices using software scripts embedded in Google’s Firebase SDK development platform [...] even if users switched off Google’s ‘Web & App Activity’ feature, without providing any notice or obtaining any consent,”<sup>10</sup> thereby violating users’ reasonable expectations of privacy.<sup>11</sup>

#### **B. Assignment**

16. I have been engaged by counsel for Google LLC (“Google”) to respond to portions of the report of Plaintiffs’ expert Bruce Schneier as they relate to Google’s disclosures, practices, and user interface (UI) design, and specifically Mr. Schneier’s claims that the Web & App Activity (“WAA”) and supplemental Web & App Activity (“sWAA”) controls, and other Google practices and products, exemplify “dark patterns.” The sources I considered for this report are listed in the attached **Appendix B**. My work is ongoing, and I may revise my opinions as I review additional documents or information that may become available.

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<sup>6</sup> Complaint, ¶ 17.

<sup>7</sup> Complaint, ¶ 17.

<sup>8</sup> Complaint, ¶ 17.

<sup>9</sup> Complaint, ¶ 1.

<sup>10</sup> Complaint, ¶ 3.

<sup>11</sup> Complaint, ¶ 286.

*Highly Confidential – Attorneys’ Eyes Only***III. SYNOPSIS OF THE SCHNEIER REPORT****IV. Mr. Schneier offers opinions about three topics.**

- a. First, he discusses “data and privacy topics” not specific to Google and offers generalities about privacy and user data.
- b. Second, he discusses “Google-specific topics” including a review of his understanding of Google’s business model, as well as user risks and controls associated with Google’s data collection. Ultimately, Mr. Schneier concludes that Google has “overwhelming incentives to maximize collection of data about users” and has created an “inescapable infrastructure” for data collection.<sup>12</sup> Mr. Schneier also argues that Google has failed to notify users of its data collection practices or provide users with “effective privacy controls”<sup>13</sup> via the WAA and sWAA settings.
- c. Third, Mr. Schneier discusses “Google tracking and web & app activity topics” by providing an overview of WAA and sWAA controls and the anonymization of user data. He then claims that “WAA and sWAA do not prevent Google from collecting, saving, and using account holders’ app activity.”<sup>14</sup> As a result, he concludes that Google relies on “dark patterns,” which he claims are “subversive user interface designs” used to manipulate users and app developers into thinking that Google “respects users’ privacy choices.”<sup>15</sup>

**V. SUMMARY OF OPINIONS**

18. Based on my professional expertise, experience, and knowledge, and my review of the information available to me in this case I have developed the following key opinions:
19. Mr. Schneier’s claims that users cannot avoid using Google products and services have no merit and are unsupported. Users choose to use Google’s products and services.

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<sup>12</sup> Expert Report of Bruce Schneier, February 20, 2023 (“Schneier Report”), ¶ 2.

<sup>13</sup> Schneier Report, ¶ 3.

<sup>14</sup> Schneier Report, ¶ 3.

<sup>15</sup> Schneier Report, ¶ 3.

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Google may collect user data to improve user interaction with Google by identifying and developing products and features that create tremendous value to its users, which is why users choose to use Google’s products and services. Google is a highly customer-centric business that operates in a technologically complex environment and one that Google strives to make transparent to its users.

20. Mr. Schneier does not consider that users are heterogeneous and have different privacy preferences. Google’s UI design caters to the needs of these heterogeneous users, and provides users with control over the company’s collection of data.
21. Mr. Schneier’s claims that Google’s notice and consent procedures are confusing has no merit and is unsupported by any scientific (or other) methodology. Mr. Schneier’s text analysis of Google’s TOS and privacy policies is methodologically flawed and not valid. Mr. Schneier has not presented any evidence as to why a readability calculator is a valid proxy for users’ actual perceptions, nor does he apply the readability calculator to the specific at-issue WAA or sWAA disclosures. Mr. Schneier fails to take into account that Google’s UI design and privacy disclosures at issue in this case are user-friendly and evolutionary, and account for users’ individualized and contextual preference for privacy. Contrary to Mr. Schneier’s assertion that disclosures are ineffective, based on my review of Google’s UI design and privacy disclosures, it is evident that Google employs key UI design principles such as progressive disclosure to ensure that its notice and consent procedures are as clear as possible.
22. Mr. Schneier’s conclusion that Google’s WAA and sWAA user interface and disclosures exemplify “dark patterns” is not supported by any scientifically sound methodology. Mr. Schneier’s main argument is that the disclosures surrounding WAA and/or sWAA settings exemplify a “dark pattern” because the disclosures focus only on what the settings control—whether a user wishes to save their activity in their Google Account—and do not address how Google’s business-facing products and services which operate independently from a user’s Google Account, such as Google Analytics for Firebase, may separately send Google anonymized data. In my view, Google’s practice of limiting WAA and sWAA disclosures to information relevant to a user’s Google Account (which

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is what those settings control) does not fit any definition of “dark patterns” from the academic literature or from Mr. Schneier’s expert report. The allegations in this case are about users who already have WAA and sWAA turned off, not users who may or may not have been manipulated into enabling a setting they would not otherwise have enabled. Furthermore, principles of good UI design support the appropriateness of limiting disclosures, like Google did here, to only what is relevant for a user to know about what the WAA and sWAA settings control. Providing information about the virtually unlimited set of features that the WAA settings do not control outside of their Google Accounts would overwhelm users and distract them from what is important to know about these specific settings. Moreover, Google requires that third-party apps like Lyft or the New York Times that utilize the Firebase SDK include disclosures in their privacy policies, stating that Google is collecting and saving information related to their activity on such apps. This makes sense from a UI design perspective because it communicates information related to data collection pertaining to third-party apps where it is relevant to do so: in third-party app user agreements.

23. Mr. Schneier inappropriately mischaracterizes deposition testimony and internal communications from Google employees regarding WAA and sWAA disclosures and other Google products. Mr. Schneier takes those statements out of context and twists them to say that Google employees agree with him with respect to the issues *in this case*. In fact, in many cases, there is direct evidence those statements had to do with entirely different issues. Mr. Schneier’s conclusion that Google purportedly “ignored” the concerns of its employees is incorrect, as many of the documents in fact demonstrate Google’s repeated commitment to providing users with transparency and control. Mr. Schneier also ignores relevant testimony and other context that make clear that some Google employees misunderstood the company’s WAA product and data collection practices at the time they made the statements in question.

*Highly Confidential – Attorneys’ Eyes Only***V. MR. SCHNEIER FAILS TO CONSIDER THAT USERS CHOOSE TO USE GOOGLE**

24. Mr. Schneier repeatedly portrays Google as having a surveillance-dependent business model and claims that Google disregards its users’ needs for privacy in its pursuit of profits by “harvesting user data.”<sup>16</sup> However, Mr. Schneier mischaracterizes the reality of Google’s business model and ignores the value users find in Google’s products. I will show in the following section how Google has a customer-centric culture, which leads to Google developing popular products that effectively meet users’ needs that users choose over competitive offerings.

**A. Mr. Schneier’s Claim that Google Has a Surveillance-Dependent Business Model Ignores Google’s Customer-centric Culture**

25. Mr. Schneier claims that there is a “conflict between the Google’s desire for data and its users’ desire for privacy,”<sup>17</sup> and emphasizes Google’s “surveillance-dependent business model.”<sup>18</sup> However, Mr. Schneier conveniently ignores Google’s customer-centric culture, and does not acknowledge the tremendous value that Google’s innovative products and services have introduced to its users as a result of such culture.
26. Google is a highly innovative and extraordinarily successful company. Google has successfully developed products and services that appeal to a massive and diverse user base. Google also constantly strives for improvement, responds to user feedback, and seeks to create the best possible user experience across all its diverse user segments.<sup>19</sup>
27. One of the reasons behind Google’s enormous success is due to the fact that it is a customer-centric company. Customer-centric firms view customer needs as central to the firm’s actions, and adopt specific frameworks to extract insights about customer needs and then use these insights to drive business decisions.<sup>20</sup> Customer-centric firms

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<sup>16</sup> Schneier Report, Sections 7.1, 7.2 and 7.3.

<sup>17</sup> Schneier Report, ¶ 178.

<sup>18</sup> Schneier Report, Section V.

<sup>19</sup> See, e.g., GOOG-RDGZ-00089849 (Presentation titled “My Activity – PDPO Flamingo Summit,” February 11, 2020, at -862).

<sup>20</sup> Fader, Peter. *Customer centricity: Focus on the right customers for strategic advantage*, Second Edition, University of Pennsylvania Press, 2020.

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understand that ‘[c]ustomers represent the fundamental unit of analysis for marketing strategy, because each individual customer is an independent, decision-making entity.’”<sup>21</sup>

28. According to Glass and Callahan (2014, p. 22), “Google is a nearly perfect example of a customer-focused, data-driven company. The first of its core tenets is: Focus on the user and all else will follow.”<sup>22</sup> This tenet is especially important, as it shows that Google “focus[es] on providing the best user experience possible,” and that Google “take[s] great care to ensure that they will ultimately serve [the user].”<sup>23</sup> Schmidt and Rosenberg (2014, p. 216) also explain that Google recognizes the importance of the user and “will always do what’s right for the user.”<sup>24</sup> Google’s customer-centric culture has also been observed in case studies, where “Google prioritized the end user first,” and Google engineers focused on “designing the products that would keep users happy.”<sup>25</sup>
29. I have also encountered several instances of Google focusing on the user during my review of documents in the matter.<sup>26</sup> For example, in pursuit of its user-focused mission, Google has employed a unique organizational structure where multiple teams across different products and functionalities work together to address the needs of its users. For example, Google has employed the use of Privacy Working Groups (“PWGs”),

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<sup>21</sup> Palmatier, Robert W. and Shrihari Sridhar, *Marketing Strategy: Based on First Principles and Data Analytics*, Macmillan Education Limited, 2021.

<sup>22</sup> Glass, Russell and Sean Callahan, *The Big Data-Driven Business: How to Use Big Data to Win Customers, Beat Competitors, and Boost Profits*, John Wiley & Sons, 2014, p. 22; “Ten things we know to be true,” *Google*, available at <https://about.google/philosophy/>. See also “Google’s ‘user-centric’ brand mission,” *WARC*, August 1, 2018, available at <https://www.warc.com/newsandopinion/news/googles-user-centric-brandmission/en-gb/39839>; Miller, Michael J., “Google Cloud’s Thomas Kurian Says Customer Success Is Key,” *PCMag*, October 30, 2019, available at <https://www.pcmag.com/news/google-clouds-thomas-kurian-says-customersuccess-is-key>; Gosh, Sudipto, “New Google Analytics Brings in Customer-centric Measurement, YouTube Conversions Reports and Much More,” *MarTech Series*, October 14, 2020, available at <https://martechseries.com/analytics/new-google-analytics-brings-in-customer-centric-measurement/>.

<sup>23</sup> “Ten things we know to be true,” *Google*, available at <https://about.google/philosophy/>.

<sup>24</sup> Schmidt, Eric and Jonathan Rosenberg, *How Google Works*, First Edition, Grand Central Publishing, 2014, pp. 212-216. See also Levy, Steven, *In the plex: how Google thinks, works, and shapes our lives*, Simon & Schuster, 2011, pp. 4-7.

<sup>25</sup> Simons, Robert, and Annelena Lobb, “Google to Alphabet: Ten Things We Know to be True,” Harvard Business School Case 116-029, December 12, 2017.

<sup>26</sup> See, e.g., GOOG-RDGZ-00026437 (Presentation titled “Instep – Ensuring users feel comfortable & safe when using Google services,” at -469); GOOG-RDGZ-00039860 (Presentation titled “My Activity History Retention,” January 2019, at GOOG-RDGZ-00039863); GOOG-RDGZ-00089849 (Presentation titled “My Activity – PDPO Flamingo Summit,” February 11, 2020, at -854-858); GOOG-RDGZ-00173265 (Presentation titled “Trust is a relationship, not a transaction,” October 13, 2020 at -272, -284-285, -343).

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distributed teams of employees responsible for building and enhancing privacy products and features to address user needs. Over the years, these PWGs have comprised “privacy specialists associated with each product group” responsible for providing privacy-focused guidance for product teams, ensuring that each product launched by Google has “good privacy characteristics.”<sup>27</sup>

30. Beyond the PWGs, Google also created a dedicated internal organization, the Privacy and Data Protection Office (“PDPO”), which was responsible for conducting a “privacy launch review” for Google’s products<sup>28</sup> and helped ensure that Google’s products reflect strong, user-focused privacy features. For example, in October 2019, Eric Miraglia (former Director of Product Management from the PDPO) announced a series of improvements and new privacy and security features to Google’s apps and services.<sup>29</sup> These improvements included allowing users to access incognito mode on Google maps and extending the auto-delete feature to YouTube, which allows users to select when Google “automatically delete [the user’s] Location History and Web and App Activity.”<sup>30</sup>
31. Beyond these new privacy features, the PDPO also worked on simplifying the user’s experience when interacting with Google’s activity controls and privacy settings. In an internal email to Google employees, the PDPO highlighted key changes made to Google’s “Data & personalization page,” which made these settings “simpler and easier to use” while maintaining user control.<sup>31</sup> Collectively, approximately 80 employees consisting of engineers, product managers, program managers, and other employees across multiple teams (including the PWG and PDPO) worked together to develop these

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<sup>27</sup> Deposition of Eric Miraglia, October 25, 2022 (“Miraglia Deposition”), pp. 34:24-35:2.

<sup>28</sup> Miraglia Deposition, p. 33:16-21.

<sup>29</sup> “Keeping privacy and security simple, for you,” *Google*, October 2, 2019, available at <https://blog.google/technology/safety-security/keeping-privacy-and-security-simple-you/>.

<sup>30</sup> “Keeping privacy and security simple, for you,” *Google*, October 2, 2019, available at <https://blog.google/technology/safety-security/keeping-privacy-and-security-simple-you/>.

<sup>31</sup> GOOG-RDGZ-00186830 (Email from Benjamin Poiesz titled “PDPO Program Update - ‘The Making of a Privacy Moment,’” October 21, 2019, at -833-834).

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new privacy and security features and make these privacy controls “easier for [Google’s] users to understand and manage.”<sup>32</sup>

32. Contrary to Mr. Schneier’s claims that there is a “conflict between the Google’s desire for data and its users’ desire for privacy,”<sup>33</sup> the examples above highlight Google’s ongoing commitment to improving the user’s experience and addressing user concerns about privacy. Google does not have a “surveillance-dependent business model”<sup>34</sup> as Mr. Schneier claims. Instead, Google’s customer-centric focus means that user data collection is motivated by the desire to improve the user’s experience. Google uses the data it collects to improve user interaction with Google by identifying and developing products and features that users want. Google’s unique organizational structure, where multiple teams across different products and functionalities work together to address the needs of its users, also ensures that internal teams within Google tackle user problems from multiple perspectives and incorporate knowledge from various different functions at the company.
33. Mr. Schneier also claims that “not even Google employees understand how—or whether—users can control the data Google collects.”<sup>35</sup> But, Mr. Schneier’s only examples are statements from two Google employees whose expertise is unrelated to WAA—Sam Heft-Luthy (former Google product manager for privacy and user trust) and Xinyu Ye (a Google software engineer focused on Differential Privacy)—which he uses to generalize across the entire Google organization. Mr. Schneier takes Mr. Heft-Luthy’s deposition testimony out of context. Reading his transcript as a whole, it is clear that Mr. Heft-Luthy’s statement that he had “incomplete knowledge” of Google systems at the time he worked there was a characterization of how product managers, like himself, “have knowledge[] at different levels of abstraction that might involve conversations with certain figures having one level of abstraction and certain figures having another level of

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<sup>32</sup> GOOG-RDGZ-00186830 (Email from Benjamin Poiesz titled “PDPO Program Update - ‘The Making of a Privacy Moment,’” October 21, 2019, at -832-833, 836-837).

<sup>33</sup> Schneier Report, ¶ 178.

<sup>34</sup> Schneier Report, Section V.

<sup>35</sup> Schneier Report, ¶ 265.



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abstraction.”<sup>36</sup> When asked about the impact of certain controls, Mr. Heft-Luthy testified that he could not “speak in specificity of all scenarios.”<sup>37</sup> Similarly, in response to Plaintiffs’ question about whether he knew “any specific piece of information” that Google would not collect if a user turned WAA off, Mr. Heft-Luthy said it was “hard for [him] to recall a specific instance.”<sup>38</sup> That is not equivalent to not understanding “how—or whether—users can control the data Google collects.”

34. Mr. Ye’s testimony is also inconsistent with Mr. Schneier’s claims. Mr. Ye told Plaintiffs that he worked on “differential privacy algorithms”<sup>39</sup> and “adding noise to the computation of data.”<sup>40</sup> Although his job description did not entail knowledge of WAA, he was asked repeatedly about things outside of the scope of his work—*e.g.*, what Web & App Activity is supposed to do.<sup>41</sup> Therefore, it is inappropriate for Mr. Schneier to claim that Google employees in general do not understand how or whether users can control the WAA data Google collects based solely on the cherry-picked testimonies of two employees with limited exposure to Web & App Activity.

**B. Mr. Schneier’s Claims Regarding User’s Inability to Avoid Google are Unsupported and Irrelevant**

35. Mr. Schneier claims that “[t]here is no way to completely avoid Google[’s]” products and services.<sup>42</sup> To support his claim, Mr. Schneier cites a New York Times article by a technology reporter named Kashmir Hill. However, Mr. Schneier exaggerates her conclusions, and fails to consider that her findings are anecdotal and based on a sample size of 1, herself. Ms. Hill’s article does not support Mr. Schneier’s claims that users have no choice among technology offerings. In fact, Ms. Hill herself acknowledges that

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<sup>36</sup> Deposition of Sam Heft-Luthy, February 8, 2023 (“Heft-Luthy Deposition”), p. 54:20-24.

<sup>37</sup> Heft-Luthy Deposition, p. 53:1-6.

<sup>38</sup> Heft-Luthy Deposition, p. 56:7-13.

<sup>39</sup> Deposition of Xinyu Ye, February 9, 2023 (“Ye Deposition”), p. 26:21-22.

<sup>40</sup> Ye Deposition, p. 12:18-19.

<sup>41</sup> Ye Deposition, p. 16:16-17.

<sup>42</sup> Schneier Report, ¶ 207.

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“there are alternatives for products and services offered by the tech giants, but they are harder to find and to use.”<sup>43</sup>

36. Ms. Hill also claims that when she blocked Google, “the entire internet slowed down.”<sup>44</sup> However, aside from her anecdotal description of her brief experience, Ms. Hill provides no evidence to support her claim that Google was the cause of her internet slowdown. Additionally, Ms. Hill’s anecdotal experience does not support Mr. Schneier’s claim that users do not have a choice. As highlighted by Ms. Hill, users are free to choose products and services not run by Google.

## **VI. CONTRARY TO MR. SCHNEIER’S CLAIMS, GOOGLE CATERS TO USERS’ HETEROGENEOUS AND CONTEXTUAL PRIVACY CONCERNS**

37. Mr. Schneier claims that Google’s “privacy efforts are primarily directed at building user trust rather than delivering real protection”<sup>45</sup> and that Google routinely violates user privacy. To support his claim, Mr. Schneier relies on an October 2020 email by Sam Heft-Luthy (former Google Product Manager for Privacy & User Trust), and concludes that “Google prioritized the ‘gameable’ goal of increasing users’ positive feelings towards Google.”<sup>46</sup> However, Mr. Schneier fails to describe what he means by “real protection,” and does not explain how users were allegedly harmed due to Google’s alleged failure to provide “real protection.” Moreover, Mr. Schneier fails to acknowledge that “Google has a variety of privacy objectives... and that user trust is consistently one of them.”<sup>47</sup>
38. Moreover, Mr. Schneier ignores that users are highly heterogeneous with varying needs and preferences. Google, being a customer-centric provider, is well aware that privacy concerns are highly contextual and individualized. Google has demonstrated this by

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<sup>43</sup> Hill, Kashmir, “I Tried to Live Without the Tech Giants. It was Impossible,” *The New York Times*, July 31, 2020, available at <https://www.nytimes.com/2020/07/31/technology/blocking-the-tech-giants.html>.

<sup>44</sup> Hill, Kashmir, “I Tried to Live Without the Tech Giants. It was Impossible,” *The New York Times*, July 31, 2020, available at <https://www.nytimes.com/2020/07/31/technology/blocking-the-tech-giants.html>.

<sup>45</sup> Schneier Report, ¶ 263.

<sup>46</sup> Schneier Report, ¶ 263; GOOG-RDGZ-00173562 (Email from Sam Heft-Luthy titled “Fwd: Program Review: Privacy Surfaces,” October 14, 2020, at -562).

<sup>47</sup> Heft-Luthy Deposition, pp. 12:3-21, 69:4-10.

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highlighting how its privacy and security principles conform to several model frameworks of protecting user privacy, including the ones Mr. Schneier refers to such as the OECD Privacy Framework and the ACM Code of Ethics and Professional Conduct.<sup>48</sup>

39. Google clearly states on its Google Cloud’s Common Privacy Principles webpage that its principles are “grounded in globally recognized standards and frameworks,” including the OECD Privacy Framework.<sup>49</sup> Moreover, Google’s privacy and security principles include “Respect our users” and “Respect their privacy,” and “Be clear about what data we collect and why.”<sup>50</sup> These principles are in-line with the ACM Code of Ethics and Professional Conduct, which states that computing professionals should be “honest and trustworthy” and “Respect privacy.”<sup>51</sup> In this section, I will address some of the specific criticisms put forth by Mr. Schneier about Google’s privacy and data collection practices.

#### **A. Privacy Concerns Are Contextual and Individualized**

40. Mr. Schneier claims that people’s privacy intuition “begins to fail” in an online setting.<sup>52</sup> According to Mr. Schneier, people are incapable of using the internet in an informed manner because there is a “lack of transparency” surrounding the privacy policies of the internet and mobile apps, making it difficult for people to make “complex privacy decisions.”<sup>53</sup> Setting aside the fact that Mr. Schneier has presented no support whatsoever to back his claims on privacy intuitions or their failure, offline or online, Mr. Schneier’s statements oversimplify issues surrounding privacy disclosures and its effect on users.
41. Privacy is not a monolithic construct that is automatically violated whenever information is collected. Rather, both the context and individual preferences affect the level of a perceived privacy threat by users. The high level of variance among individuals with respect to privacy reinforces the importance of applying industry norms and market context, leading Nissenbaum (2009) to conclude that only data collection practices that

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<sup>48</sup> Schneier Report, ¶¶ 132-135.

<sup>49</sup> “Google Cloud and Common Privacy Principles,” Google, available at <https://cloud.google.com/privacy/common-privacy-principles>.

<sup>50</sup> “Our Privacy and Security Principles,” Google, available at <https://safety.google/principles/>.

<sup>51</sup> Schneier Report, ¶ 133.

<sup>52</sup> Schneier Report, ¶ 143.

<sup>53</sup> Schneier Report, ¶¶ 144-146.

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violate “context-relative informational norms” are problematic.<sup>54</sup> Moreover, Solove (2021) states that “privacy’s value involves the right to have choices and protections,” and that individuals “can value having the choice even if they choose to trade away their personal data.”<sup>55</sup> This highlights the contextual and individualized nature of privacy.

42. Mr. Schneier states that “trading privacy for services isn’t necessarily a good or fair bargain,”<sup>56</sup> and conveniently ignores the robust literature on the role of privacy concerns in users’ decision-making processes in the context of engaging with mobile app services. The research shows that users have different expectations depending on the type of personal data collected and how the data is used. For example, when the “data is used to improve a product or service, consumers generally feel the enhancement itself is a fair trade for their data.”<sup>57</sup> While privacy concerns are an important determinant of engagement with mobile app services, “users tend to trade-off their privacy for the benefits obtained.”<sup>58</sup> These studies demonstrate that Mr. Schneier is incorrect that people are incapable of making “complex privacy decisions.”<sup>59</sup> On the contrary, research shows quite clearly that people consciously make decisions to engage in a privacy trade-off in exchange for the benefits of mobile app services.
43. The literature also makes it clear that there is no such thing as a “representative” user with respect to privacy. Instead, users have diverse “mental models” and expectations,<sup>60</sup> and multiple studies have shown that the perception of privacy threats is highly

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<sup>54</sup> Nissenbaum, Helen, *Privacy in Context: Technology, Policy, and the Integrity of Social Life*, Stanford University Press, 2009, p. 186.

<sup>55</sup> Solove, Daniel J., “The Myth of the Privacy Paradox,” *George Washington Law Review*, Vol. 89, No. 1 (January 2021): 1-51, at p. 24.

<sup>56</sup> Schneier Report, ¶ 144.

<sup>57</sup> Morey, Timothy, Theodore Forbath, and Allison Schoop, “Customer Data: Designing for Transparency and Trust,” *Harvard Business Review*, May 2015, available at <https://hbr.org/2015/05/customer-data-designing-for-transparency-and-trust>.

<sup>58</sup> Gutierrez, Anabel, et al. “Using privacy calculus theory to explore entrepreneurial directions in mobile location-based advertising: Identifying intrusiveness as the critical risk factor.” *Computers in Human Behavior*, Vol. 95 (2019): 295-306. The authors posit that this may be the case because users are progressively accepting that privacy/security concerns are better managed than before.

<sup>59</sup> Schneier Report, ¶¶ 144-146.

<sup>60</sup> Lin, Jialiu et al., “Expectation and Purpose: Understanding Users’ Mental Models of Mobile App Privacy Through Crowdsourcing,” *Conference: Proceedings of the 2012 ACM Conference on Ubiquitous Computing* (September 2012): 1-10.

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individualized. Differences among users on measures of age,<sup>61</sup> personality,<sup>62</sup> psychosocial characteristics,<sup>63</sup> and fatigue<sup>64</sup> can significantly affect user decisions about privacy. In fact, a recent study used 34 distinct factors to construct a privacy calculus index, reinforcing that individual privacy decisions are multifaceted.<sup>65</sup>

44. Given that individual users have differing preferences for privacy that vary depending on characteristics of the user and the context, a key challenge that UI designers grapple with is balancing functionality (power) with usability (simplicity). Good UI often accomplishes this balancing act by offering an interface that enables enhanced functionality while being easy to use for most users. I will show how Google designs its UI to provide users control over what data Google collects in the following section.

**B. Google Provides Users Control Over the Company’s Collection of Their Data**

45. Mr. Schneier claims that Google’s efforts to feature user-control in its products is misleading, and that “turning off WAA and sWAA appears to give users even less control, placing Google’s collection, storage, and use of data generated by those users’ activity beyond any of the otherwise available controls.”<sup>66</sup> Mr. Schneier’s argument is flawed and mischaracterizes the control and functionalities Google has provided its users through Google’s UI design.
46. As described above, privacy is not a monolithic construct, and users engage in a “privacy trade-off” between balancing the value that the service provides with any costs to

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<sup>61</sup> “Americans and Privacy: Concerned, Confused and Feeling Lack of Control Over Their Personal Information,” *Pew Research Center*, November 15, 2019, available at <https://www.pewresearch.org/internet/2019/11/15/americans-and-privacy-concerned-confused-and-feeling-lack-of-control-over-their-personal-information/>.

<sup>62</sup> Junglas, Iris A., Norman A. Johnson, and Christiane Spitzmüller. “Personality traits and concern for privacy: an empirical study in the context of location-based services.” *European Journal of Information Systems*, Vol. 17 (2008); 387-402.

<sup>63</sup> Lee, Jin-Myong, and Jong-Youn Rha. “Personalization–privacy paradox and consumer conflict with the use of location-based mobile commerce.” *Computers in Human Behavior*, Vol. 63 (2016): 453-462.

<sup>64</sup> Choi, Hanbyul, Jonghwa Park, and Yoonhyuk Jung. “The role of privacy fatigue in online privacy behavior.” *Computers in Human Behavior*, Vol. 81 (2018): 42-51.

<sup>65</sup> Beke, Frank T., Felix Eggers, Peter C. Verhoef, and Jaap E. Wieringa, “Consumers’ privacy calculus: The PRICAL index development and validation.” *International Journal of Research in Marketing*, Vol. 39, No. 1 (March 2022): 20-41.

<sup>66</sup> Schneier Report, ¶ 257.

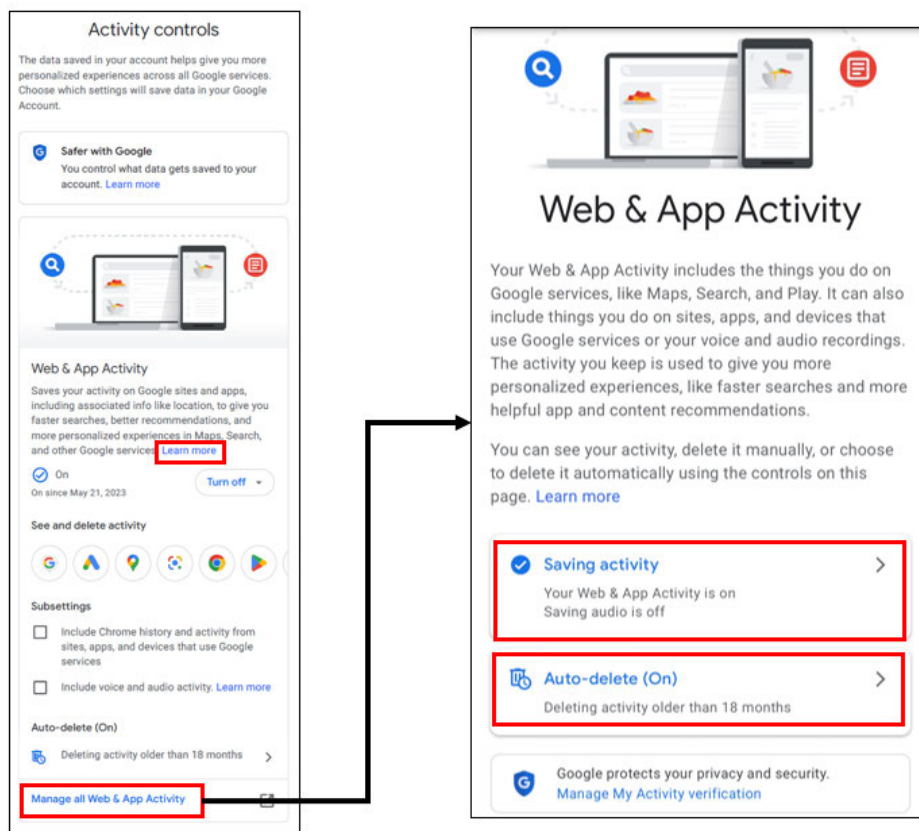
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privacy. Mr. Schneier also fails to consider the control that Google provides to users over the company’s collection of their data, and how Google’s UI design facilitates easy understanding by users of how to use the controls Google provides.

47. Google recognizes that “Privacy [and] Security,” are the “top trust drivers for Google.”<sup>67</sup> As a result, Google has adopted three key principles regarding user data retention. These principles include: (1) “Don’t collect or retain what we don’t need;” (2) “Privacy must be balanced with visible user value;” and (3) “The user must be in control.” Google’s interface design with respect to data retention disclosures is user-friendly, especially considering how complex the underlying information is. It gives users easy control over the choices they make, the paramount concern in UI, without overwhelming them.
48. The image below shows Google’s WAA consent flow from a user’s Google Account Activity Controls. When users first access their activity controls page, they are presented with a high-level overview of what types of data Google saves on their Google Account for personalization, and what type of benefits they can expect to receive from storing this data. As the left panel shows, users interested in learning more about WAA data can simply click on the link to “Learn more,” (emphasis with red box added). On the other hand, if users are interested in managing their WAA settings, they can simply click on “Manage all Web & App Activity” (emphasis with red box added) and be served the screen shown on the right panel in the image.

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<sup>67</sup> GOOG-RDGZ-00026437 (Presentation titled “Instep – Ensuring users feel comfortable & safe when using Google services,” at -438).

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49. Users that choose to click on the “Manage all Web & App Activity” link will be offered several options to personalize how Google manages their data. These include changing Google’s WAA data collection settings (“Saving Activity,” emphasis with red box added), or setting up Auto-delete for a user’s WAA data (“Auto-delete (On),” emphasis with red box added). Contrary to Mr. Schneier’s claims that “turning off WAA and sWAA appears to give users even less control,”<sup>68</sup> Google’s UI design makes it easy for users to learn about and control the types of WAA information Google collects and for how long.
50. Users who enable the WAA control benefit from the personalization it offers. For example, with WAA enabled, users receive “faster searches, better recommendations, and

<sup>68</sup> Schneier Report, ¶ 257.



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more personalized experiences in Maps, Search, and other Google services.”<sup>69</sup> Some users prefer to have their browsing experience tailored to their particular interests and preferences, and thus see personalization as an advantage.<sup>70</sup>

**VII. CONTRARY TO MR. SCHNEIER’S CLAIMS, GOOGLE’S UI DESIGN AND PRIVACY DISCLOSURES ARE USER-FRIENDLY AND EVOLUTIONARY**

51. Mr. Schneier also claims that Google’s notice and consent procedures are confusing,<sup>71</sup> the time span between revisions was too short,<sup>72</sup> and that Google’s privacy documents contain too many links to other pages on Google’s website which direct users to notices pertaining to specific features.<sup>73</sup> These critiques demonstrate Mr. Schneier’s lack of understanding of good UI design. Moreover, Mr. Schneier fails to show how a reasonable user would interpret Google’s privacy disclosures and how the alleged misrepresentation in Google’s WAA disclosure is “highly offensive” to a reasonable user.<sup>74</sup>
52. Companies like Google adopt key principles of UI design such as progressive disclosure to meet the diverse needs of their highly heterogeneous users. For example, Google relies on progressive disclosure so that users are in control of the level of detail they wish to explore with respect to Google’s privacy disclosures based on their individual needs. Users are able to decide what links or webpages they click on, and what information they would like to know to further their understanding of Google’s policies with respect to user data collection and use. Below I describe a) how Google relies on progressive disclosure to cater to heterogeneous user populations, b) how Google strives to constantly evolve its UI and privacy disclosures, and c) why Mr. Schneier’s analysis on Google’s notice and consent procedures is flawed.

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<sup>69</sup> “Activity controls,” *Google Account*, available at <https://myactivity.google.com/activitycontrols>.

<sup>70</sup> Morgan, Blake, “50 Stats Showing The Power Of Personalization,” *Forbes*, February 18, 2020, available at <https://www.forbes.com/sites/blakemorgan/2020/02/18/50-stats-showing-the-power-of-personalization/?sh=644107cb2a94>.

<sup>71</sup> Schneier Report, Section 9.3.

<sup>72</sup> Schneier Report, ¶ 276.

<sup>73</sup> Schneier Report, ¶ 278.

<sup>74</sup> Schneier Report, ¶ 25.



*Highly Confidential – Attorneys’ Eyes Only***A. Overview of Key Principles of UI Design****1. Progressive Disclosure**

53. Mr. Schneier states that “people shouldn’t need to be technical experts” to understand how user data is being saved or used.<sup>75</sup> I agree with Mr. Schneier’s statement. Indeed, based on the documents I have reviewed, Google does not expect its users to be technical experts. Instead, Google designs its UI and privacy disclosures with the heterogeneous needs of the user top of mind, and relies on progressive disclosure to organize and display information in a way that is user-friendly.
54. ***Progressive disclosure*** is a long-standing approach to interface design that reconciles functionality and content with usability.<sup>76</sup> Progressive disclosure was first called the “Training-Wheels System” in the 1980s, with the process rooted in the understanding of human cognition. Progressive disclosure has been shown to improve efficiency and usability.<sup>77</sup> Fundamentally, progressive disclosure involves simply presenting only the most important and commonly-used features first and deferring more sophisticated options to secondary screens.<sup>78</sup> Progressive disclosure prioritizes the most important features, and lets users control what additional features or details they want or need to see next with the goal of simplifying the basic experience for users.
55. Thus, progressive disclosure lets individual users control and decide for themselves what information they want to consider and in what order, when interacting with an interface. This design flexibly accommodates different users’ needs, and allows both novice and experienced users to exercise choice and control.<sup>79</sup>

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<sup>75</sup> Schneier Report, ¶ 145.

<sup>76</sup> Nielsen, Jakob, “Progressive Disclosure,” *Nielsen Norman Group*, December 3, 2006, available at [www.nngroup.com/articles/progressive-disclosure/](http://www.nngroup.com/articles/progressive-disclosure/); “Progressive Disclosure,” *Interaction Design Foundation*, available at <https://www.interaction-design.org/literature/topics/progressive-disclosure>.

<sup>77</sup> Galitz, Wilbert O. *The essential guide to user interface design: an introduction to GUI design principles and techniques*. John Wiley & Sons, 2007, pp. 56-57.

<sup>78</sup> Carroll, John M. and Caroline Carrithers, “Training Wheels in a User Interface,” *Communications of the ACM*, Vol. 27, No. 8 (August 1984): 800-806; Babich, Nick, “Progressive Disclosure: Simplifying the Complexity,” *Shopify Partners*, August 5, 2019, available at [www.shopify.com/partners/blog/progressive-disclosure](http://www.shopify.com/partners/blog/progressive-disclosure).

<sup>79</sup> Nielsen, Jakob, “Progressive Disclosure,” *Nielsen Norman Group*, December 3, 2006, available at

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56. Information underlying mobile apps services and related technology disclosures is complex. Therefore, it is critical to maintain a user-friendly interface that is accessible to the highly diverse population of smartphone users. This is challenging as smartphone users represent most adults in the U.S. Therefore, the goal is to provide an easy and intuitive UI that will satisfy the many different needs and types of users who wish to learn more about their app privacy settings. A UI based on progressive disclosure offers users the most effective way to access the information they are looking for without overwhelming the user with an overload of information.<sup>80</sup>
57. Moreover, the constantly evolving mobile app services markets and related user cognition are also important contextual considerations to keep in mind when evaluating the UI at issue as well. With mobile app services being in high demand, and users having heterogeneous needs and preferences, it makes sense to offer users control over the many choices they face when learning about and adjusting their settings. Progressive disclosure lets users control and tailor their interactions to their own preferences.
58. Developers are unable to predict exactly what will be important to each user in every situation as there are hundreds or even thousands of combinations of potential user actions available in a mobile operating system. Therefore, developers need to decide how best to group options that address the needs of diverse users while at the same time providing for control. Developers rely on a variety of different menus, hyperlinks, and icons group options to provide user control over navigation. These menus, hyperlinks, and icons allow users to navigate to the features, setting options and information that are most relevant to them. In mobile OS and app design, in which both users’ time and screen space, i.e., “real estate,” is limited, progressive disclosure is critically important.<sup>81</sup>

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[www.nngroup.com/articles/progressive-disclosure/](http://www.nngroup.com/articles/progressive-disclosure/). Progressive disclosure stands in opposition to those who would argue that instead of offering users options about what to do next in an interaction, users should instead be overloaded with every single piece of information on every screen, regardless of its relevance to every user in every context in every interaction.

<sup>80</sup> Google’s own search help pages offer informative steps for users to control their data, including their Location History and Web & App Activity. See “Manage your Location History,” *Google Account Help*, available at <https://support.google.com/accounts/answer/3118687>; “Find & control your Web & App Activity,” *Google Account Help*, available at <https://support.google.com/websearch/answer/54068>.

<sup>81</sup> Nielsen, Jakob, “Defer Secondary Content When Writing for Mobile Users,” *Nielsen Norman Group*, July 31, 2011, available at [www.nngroup.com/articles/defer-secondary-content-for-mobile/](http://www.nngroup.com/articles/defer-secondary-content-for-mobile/).

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59. Menu, hyperlinks, and icon navigational tools are necessary because it is simply not possible to include every detail of every single potentially relevant disclosure on every single screen. Thus, users control their interaction with disclosures through navigational tools, which are a key element of progressive disclosure. These navigational tools allow users to choose what information to access, where to click next, and so on, at any particular point in time. A good UI should be designed so that information desired by the broadest possible array of users can be quickly and easily accessed by users in the most flexible way possible.
60. As my UI analysis below in **Section VII.B** will show, Google’s UI design and privacy disclosure does not require its users, as Mr. Schneier states, to be “technical experts” to understand how user data is being saved or used.<sup>82</sup> Google’s practice of designing its Privacy Policy according to the principle of progressive disclosure enables the user to navigate and learn about Google’s privacy disclosures in a user-friendly way.

## 2. Good UI is Evolutionary

61. Mr. Schneier states that Google has issued a total of nineteen versions of Google’s Privacy Policy and four versions of the Terms of Service (“TOS”) between the beginning of the class period to December 15, 2022.<sup>83</sup> Mr. Schneier further remarks that the “time span between revisions of these policies has at times been quite short, with as many as four revisions issued in the space of a year.”<sup>84</sup> Mr. Schneier uses these observations to support his claim that “the many versions of these documents notwithstanding, their readability has not improved over time.”<sup>85</sup> Setting aside the flawed text analysis Mr. Schneier relies on to assess the readability of Google’s TOS and Privacy Policy, Mr. Schneier’s claims show that he fails to consider that a good UI design is necessarily iterative and evolves over time through user feedback.

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<sup>82</sup> Schneier Report, ¶ 145.

<sup>83</sup> Schneier Report, ¶ 274.

<sup>84</sup> Schneier Report, ¶ 276.

<sup>85</sup> Schneier Report, ¶ 277.

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62. One of the key principles of UI design is giving users control over their experience.<sup>86</sup> User control means giving users the freedom to decide what navigational choices to make during their interactions with an interface, such as which link to click, what menu to access, and so on, at any point during the interaction. Indeed, an extensive body of scholarly and industry research in online user experience and human-computer interaction supports the idea that positive experiences and successful interactions with computer devices arise from giving users control over their navigational choices.<sup>87</sup>
63. Because it is impossible for providers to know exactly what information is likely to be most important to every particular user for whatever reason at every particular step of each interaction, providers must organize their user interfaces around solid principles of UI design. Some customer-oriented providers, such as Google, do their best to apply principles of good UI design by broadly organizing large amounts of information in a reasonable manner and then providing their users with options so users can be in control of the choices they make during interaction.
64. Nested navigational menu systems are considered a best practice for content-heavy sites and have become pervasive; most users are thus familiar with them.<sup>88</sup> Though such menu systems have evolved since the introduction of smartphones, the basic concepts of navigation which rely on progressive disclosure and lets users drill down on their options remain largely unchanged. These types of menus are the dominant style of operating system menus, appearing on iPhones, Android phones, web browsers and many types of software. As of 2021, approximately 85 percent of Americans own a smartphone. Thus,

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<sup>86</sup> See, e.g., Rosala, Maria, “User Control and Freedom (Usability Heuristic #3),” *Nielsen Norman Group*, November 29, 2020, available at <https://www.nngroup.com/articles/user-control-and-freedom/>; Marathe, Sampada, and S. Shyam Sundar, “What drives customization? Control or identity?” In Proceedings of the SIGCHI conference on human factors in computing systems, (May 2011): 781-790.

<sup>87</sup> Hoffman, Donna L., and Thomas P. Novak. “Marketing in Hypermedia Computer-Mediated Environments: Conceptual Foundations,” *Journal of Marketing*, Vol. 60, No. 3 (1996): 50-68; Hoffman, Donna L., and Thomas P. Novak, “Flow online: lessons learned and future prospects,” *Journal of Interactive Marketing*, Vol. 23, No. 1 (2009): 23-34; Marathe, Sampada, and S. Shyam Sundar, “What drives customization? Control or identity?” In Proceedings of the SIGCHI conference on human factors in computing systems, (May 2011): 781-790.

<sup>88</sup> Budi, Raluca, “Basic Patterns for Mobile Navigation: A Primer,” *Nielsen Norman Group*, November 15, 2015, available at <https://www.nngroup.com/articles/mobile-navigation-patterns/>; Budi, Raluca, “The State of Mobile User Experience in 2018,” *Nielsen Norman Group*, January 14, 2018, available at <https://www.nngroup.com/articles/state-mobile-ux/state-of-mobile-ux-2018/>.

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most users have become familiar with navigating UI designed with progressive disclosure.<sup>89</sup>

65. While applying principles such as progressive disclosure can improve usability, it is widely recognized that designing a UI requires extensive user testing and iteration, often even after the initial release of a product or application.<sup>90</sup> As usability expert Jakob Nielsen states, “[I]t is virtually impossible to design a user interface that has no usability problems from the start.”<sup>91</sup> Companies repeatedly iterate on the development of UI design as they receive feedback from users, whether it be to fix an existing problem experienced by users, or simply to improve the usability of the product by changing the design.
66. As I will discuss in further detail below, Google recognizes that good UI is evolutionary, and constantly strives to improve the user experience through improved UI design and privacy disclosures. For example, in a February 2020 presentation, Google recognized that user expectations surrounding privacy had shifted. In response to this change in user expectations, Google developed several tools to improve a user’s ability to control their privacy and the information Google collects, including developing an auto-delete function for WAA data, improving the quality and transparency of user metadata such as audio and location, and simplifying user controls for privacy settings.<sup>92</sup> Google is also aware that privacy disclosures are not static and evolve over time. Thus, as Mr. Schneier points out in his report, Google often updates its Privacy Policy in order to improve the readability for users.<sup>93</sup> The evolutionary nature of Google’s UI design and privacy

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<sup>89</sup> Mobile Fact Sheet,” *Pew Research Center*, April 27, 2021, available at <https://www.pewresearch.org/internet/fact-sheet/mobile/>.

<sup>90</sup> Nielsen, Jakob, “Iterative User Interface Design,” *Nielsen Norman Group*, November 1, 1993, available at <https://www.nngroup.com/articles/iterative-design/>.

<sup>91</sup> Nielsen, Jakob, “Iterative User Interface Design,” *Nielsen Norman Group*, November 1, 1993, available at <https://www.nngroup.com/articles/iterative-design/>.

<sup>92</sup> GOOG-RDGZ-00089849 (Presentation titled “My Activity – PDPO Flamingo Summit,” February 11, 2020, at - 855-858).

<sup>93</sup> Schneier Report, ¶ 274; “Updates: Privacy Policy,” *Google Privacy & Terms*, available at <https://policies.google.com/privacy/archive?hl=en-US>; Miraglia Deposition, pp. 187:10-22, 217:19-218:1.

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disclosure, as well as Mr. Schneier’s flawed text analysis to assess the readability of Google’s notice and consent procedures, will be covered in more detail below.

**B. Google’s Notice and Consent Procedures Are Not Confusing**

67. Mr. Schneier claims that Google’s policies are “long, dense, and hard to read.”<sup>94</sup> Additionally, Mr. Schneier also claims that Google’s Privacy Policy documents contain “numerous links to other pages on Google’s website,” and are overly complicated and confusing to users.<sup>95</sup> However, Mr. Schneier fails to account for the fact that Google applies the concept of progressive disclosure to its notice and consent documents as it does with other elements of its UI. Contrary to Mr. Schneier’s claims, Google’s notice and consent procedures, including the “numerous links to other pages on Google’s website,”<sup>96</sup> rely on good UI design that provides users with choices about what information they might find most useful.
68. It is my understanding that Google designed its Privacy Policy to cater to three audiences it identified: skippers, skimmers, and readers.<sup>97</sup> Google recognized that its users were heterogeneous. Within the context of the Privacy Policy, some users require additional details before making a decision to share information with Google in exchange for more personalized recommendations. On the other hand, there are users who feel as if they do not require any additional information, and are simply looking to access Google’s products and services.
69. Thus, Google developed its Privacy Policy as an interactive document that could cater to the needs of these heterogeneous users. For example, Google provided hyperlinks so users could, if interested, obtain more information about topics of interest. Google also relies on bolded and large fonts in order to capture the user’s attention. Moreover, Google frequently conducts qualitative user-testing to understand user perception towards the

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<sup>94</sup> Schneier Report, ¶ 272.

<sup>95</sup> Schneier Report, ¶ 278.

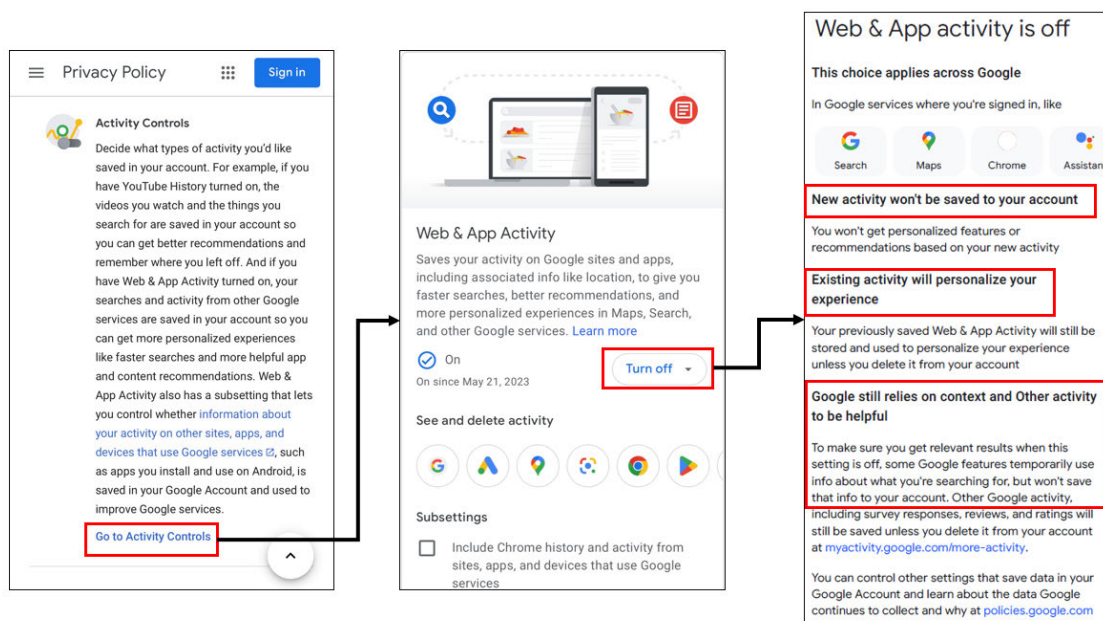
<sup>96</sup> Schneier Report, ¶ 278.

<sup>97</sup> Order, Australian Competition and Consumer Commission v. Google LLC (No 2) [2022] FCA 1476, Federal Court of Australia, December 9, 2022, available at <https://www.judgments.fedcourt.gov.au/judgments/Judgments/fca/single/2022/2022fca1476>.

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changes being made.<sup>98</sup> These are examples of some of the strategies that Google has employed to support the varying needs of its heterogeneous user base.

70. Google’s interface design with respect to disclosures at issue in this case is user-friendly, provides users with easy control over the choices they make, and evolves over time. To illustrate Google’s user-friendly UI design and privacy disclosures, I analyze the disclosures from the Activity Controls section in Google’s current Privacy Policy, and related WAA pages.<sup>99</sup> These disclosures, shown below, are concise by design to meet the needs of users who only want the key high level takeaways, while also maintaining flexibility for other users who choose to drill down for additional detail to learn more.



71. Specifically, Google’s use of hyperlinks lets users drill down on specific topics arising in the context of its service descriptions and related disclosures. For example, the far left panel above contains language describing “Activity Controls,” providing a high-level description of the types of data saved to the user’s Google Account. The page includes a link for users who wish to “Go to Activity Controls” (emphasis with red box added).

<sup>98</sup> See, e.g., GOOG-RDGZ-00090067 (Presentation titled “N3 UXR Strategy Overview and Approach,” May 5, 2020 at -078-081, -083).

<sup>99</sup> “Privacy Policy,” *Google Privacy & Terms*, December 15, 2022, available at <https://policies.google.com/privacy>; “Activity Controls,” *Google Account*, available at <https://myactivity.google.com/activitycontrols>.



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Users who click on the link and scroll down will see the center panel above, which describes “Web & App Activity.”

72. On this “Web & App Activity” page, users can “Turn Off” WAA, (emphasis with red box added). Users who opt to turn off WAA are provided with a pop-up, as shown in the far right panel, that details what users can expect now that WAA has been turned off. For example, Google makes it clear that when WAA is switched off, “new activity won’t be saved to your account,” and that Google will continue to use “existing activity” to “personalize” the user’s experience. More importantly, Google also highlights that their products and services still rely “on context and Other activity to be helpful,” and that switching WAA off means that Google “won’t save that info to your account.” Google’s inclusion of a variety of font styles and hyperlinks to other terms throughout the Privacy Policy and WAA controls allows users easy access to specific topics or control settings. This is a clear example of progressive disclosure, where Google organizes large amounts of information and presents it to users in a way that is user-friendly.
73. Google also frequently updates their Privacy Policy and WAA disclosures to reflect changes to their products and or data collection practices. For example, as Mr. Schneier claims, Google has updated its Privacy Policy nineteen times between June 28, 2016 and December 15, 2022.<sup>100</sup> To make it easier for users to review the changes, Google publishes the updated Privacy Policy alongside a comparison to the previous policy document. This allows users to quickly scan and review the updates made to the Privacy Policy. Mr. Miraglia also testified that some of the updates made by Google were made in order to improve the readability of the Privacy Policy to users.<sup>101</sup>
74. Google also updates its WAA disclosures to keep the user informed on what happens when they switch off WAA. The image below compares three versions of the WAA disclosures from January 2017 until the present.<sup>102</sup>

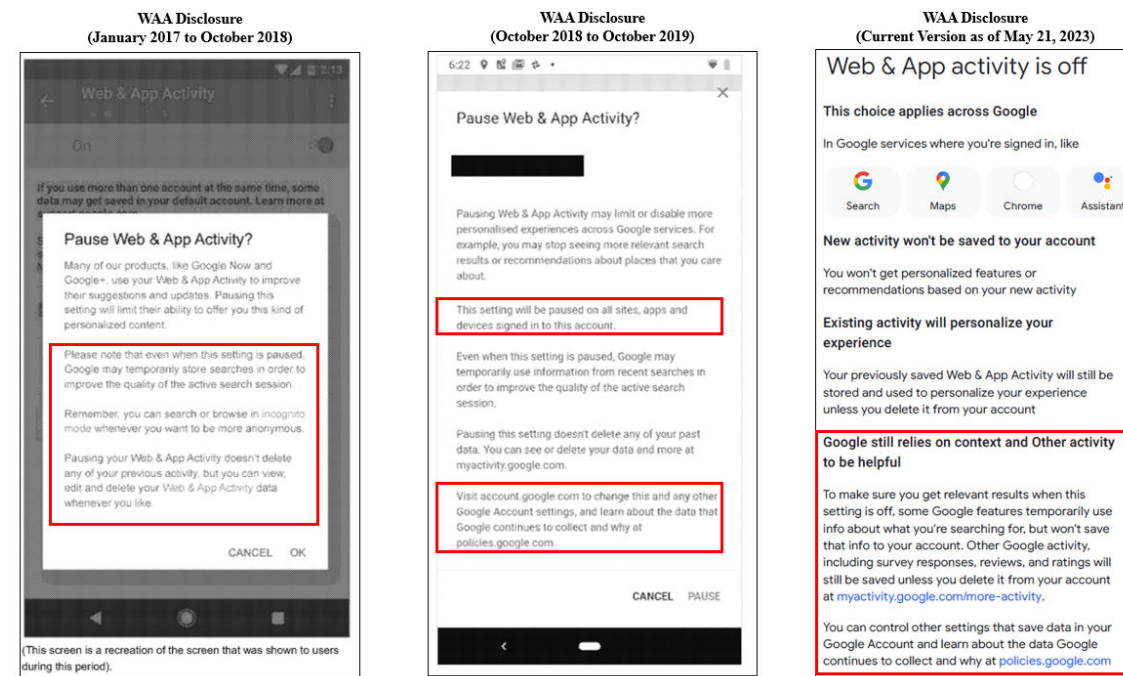
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<sup>100</sup> Schneier Report, ¶ 274; “Updates: Privacy Policy,” *Google Privacy & Terms*, available at <https://policies.google.com/privacy/archive?hl=en-US>.

<sup>101</sup> Miraglia Deposition, pp. 187:10-22, 217:19-218:1.

<sup>102</sup> GOOG-RDGZ-00154768 (Document titled “Notice of Filing,” November 26, 2020, at -880, -933); “Activity Controls,” *Google Account*, available at <https://myactivity.google.com/activitycontrols>.



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75. The far left panel is a disclosure from Google when users switch the WAA toggle from “on” to “paused” between January 2017 to October 2018. Google informs users that “even when this setting is paused, Google may temporarily store searches in order to improve the quality of the active search session,” and that pausing the user’s WAA “doesn’t delete any of your previous activity” (emphasis with red box added). Google later updated this WAA disclosure between October 2018 and October 2019, as shown in the center panel. In this version, Google built on the language of the previous disclosure and informed users that, when they pause WAA, the “setting will be paused on all sites, apps, and devices signed in to this account” (emphasis with red box added). Google also included the URL to the user’s Google Account and Google’s policy page in case users wanted to change this setting or “learn about the data that Google continues to collect and why” (emphasis with red box added).
76. Since October 2019, Google has continued to improve the WAA disclosure, leading to the far right panel above. As discussed above, Google makes it clear to the users that even when they switch WAA off, “Google still relies on context and Other activity to be helpful” and that “some Google features temporarily use info about what you’re searching for, but won’t save that info to your account” (emphasis with red box added).

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77. The fact that there have been multiple versions of the TOS, Privacy Policy and WAA disclosure is indicative of Google’s culture of constant improvement and evolution.<sup>103</sup> These examples show how Google adheres to key UI design principles such as progressive disclosure, and that good UI is evolutionary.

**C. Mr. Schneier’s Text Analysis Is Flawed**

78. In an attempt to support his claim that Google’s notice and consent procedures are confusing, Mr. Schneier inputs the text of Google’s TOS from April 14, 2014 and Privacy Policy from June 28, 2016 into a “readability calculator”<sup>104</sup> and reports its results.<sup>105</sup> Based on the results of the readability calculator, but without presenting any support for what appropriate readability scores Google’s TOS and Privacy Policy should be, Mr. Schneier concludes that Google’s 2016 TOS and Google’s 2014 Privacy Policy are “long, dense, and hard to read,”<sup>106</sup> and that the readability scores of these two documents have only continued to deteriorate.
79. Mr. Schneier has not presented any evidence that a readability calculator is a valid proxy for users’ actual perceptions. He does not present any reason as to why he chose to input Google’s TOS and Privacy Policy through the specific readability calculator available at “Online-Utility.org”<sup>107</sup> in lieu of conducting an actual analysis of user perception on Google’s TOS and Privacy Policy. Readability formulas are designed to measure the length of words and sentences.<sup>108</sup> The calculator analyzes specific features of the text,

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<sup>103</sup> Schneier Report, ¶ 274. *See also*, GOOG-RDGZ-00151130 (Document titled “2019 Company OKRs: Q2 scores & rationale); GOOG-RDGZ-00173265 (Presentation titled “Trust is a relationship, not a transaction,” October 13, 2020 at -272, -284-285, -343).

<sup>104</sup> The “readability calculator” relied on by Mr. Schneier is a “free online software tool [which] calculates readability” using a variety of readability formulas such as the Coleman Liau index, the Flesch Kincaid Grade Level, ARI (Automated Readability Index), and SMOG. “Test Document Readability,” *Online-Utility.org*, available at [https://www.online-utility.org/english/readability\\_test\\_and\\_improve.jsp](https://www.online-utility.org/english/readability_test_and_improve.jsp).

<sup>105</sup> Schneier Report, ¶ 269.

<sup>106</sup> Schneier Report, ¶ 272.

<sup>107</sup> I note that there are other readability calculators available online, such as [readable.com](https://readable.com/), [readabilityformulas.com](https://readabilityformulas.com/), and [wordcalc.com](https://wordcalc.com/). *See, e.g.*, “Be Readable,” *readable*, available at <https://readable.com/>; “Automatic Readability Checker,” *Readability Formulas*, available at <https://readabilityformulas.com/free-readability-formula-tests.php>; “Readability Calculator,” *wordcalc*, available at <https://www.wordcalc.com/readability/>.

<sup>108</sup> Jarrett, Caroline and Janice Redish, “Readability Formulas: 7 Reasons to Avoid Them and What to Do Instead,”

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such as the number of words or the length of a sentence, and uses an equation to assign the body of text a single number. The scores from the readability calculator are generally used to “check [the] difficulty of words and sentences.”<sup>109</sup> The scores from the readability calculator can in no way be used as “precise indications of comprehension” or provide “summary assessments of reading ease or usability.”<sup>110</sup> Moreover, the calculator does not consider the context or content of the actual text, nor does it take into account whether the text being analyzed meets the needs of the user. In other words, it is simply a program that applies some formulas onto whatever text is copied or typed into the textbox provided, and not a measure of users’ perceptions.

80. Among the systems of measurement relied on by Mr. Schneier, the Flesch Reading Ease, Flesch-Kincaid Grade Level, and Automated Readability Index metrics are calculated using the average sentence length and/or average syllables per word.<sup>111</sup> Similarly, the SMOG Index and the Gunning Fog counts average sentence length and considers the percentage of long words or words with three or more syllables in calculations. None of these metrics take into account the purpose or the user’s perspective when reading Google’s TOS or Privacy Policy. Therefore, Mr. Schneier’s analysis is effectively only identifying patterns and sentence complexity within Google’s TOS and Privacy Policy, and does not consider the impact of UI design on the readability of the TOS and the Privacy Policy.
81. Moreover, Mr. Schneier has not established how these readability calculators are applicable to the issues in this matter, or even whether these readability calculators

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*UX matters*, July 29, 2019, available at <https://www.uxmatters.com/mt/archives/2019/07/readability-formulas-7-reasons-to-avoid-them-and-what-to-do-instead.php>.

<sup>109</sup> “When Should I Use Readability Formulas and When Should I Not?” *Readability Formulas*, available at <https://readabilityformulas.com/articles/when-should-i-use-readability-formulas.php>.

<sup>110</sup> “When Should I Use Readability Formulas and When Should I Not?” *Readability Formulas*, available at <https://readabilityformulas.com/articles/when-should-i-use-readability-formulas.php>.

<sup>111</sup> Schneier Report, ¶ 270; Jarrett, Caroline and Janice Redish, “Readability Formulas: 7 Reasons to Avoid Them and What to Do Instead,” *UX matters*, July 29, 2019, available at <https://www.uxmatters.com/mt/archives/2019/07/readability-formulas-7-reasons-to-avoid-them-and-what-to-do-instead.php>; “The Automated Readability Index,” *Readability Formulas*, available at <https://readabilityformulas.com/automated-readability-index.php>.

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should be used in evaluating UI design or privacy disclosures.<sup>112</sup> In fact, academic research shows readability formulas have “many technical weaknesses” and “were developed for children’s schoolbooks, not adult technical documentation.”<sup>113</sup> When designing its Privacy Policy, Google is attempting to distill complex, technical concepts for a highly heterogeneous group of users in a way that is easy for them to understand. This involves design choices other than syllable length and number of words per sentence, which may be relevant considerations for a child’s schoolbook, but not for technical documentation. It is important to avoid “readability formulas [from] being used in contexts where they have no research base” since “a better way of assessing readability is user testing.”<sup>114</sup> Also problematic is that different readability calculators may calculate different scores for the same text, calling into question the reliability of Mr. Schneier’s findings.<sup>115</sup> In sum, the academic literature does not support the use of readability calculators in the assessment of whether technical documentation such as Google’s notice and consent procedures are confusing.

82. Even if a readability calculation were a valid proxy of users’ perception, Mr. Schneier fails to apply the readability calculator to the specific at-issue WAA or sWAA disclosures. Instead, Mr. Schneier simply applies the readability calculator to the entire Privacy Policy, which is less of a key focus in this matter.

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<sup>112</sup> I note that Mr. Schneier claims that “[r]eadability calculators are a common tool to test the readability of documentation, and have been used by Google to analyze proposed disclosures.” Mr. Schneier relies on a May 5, 2020 internal Google presentation as support that Google has used the “Flesch-Kincaid” formula as part of its “consent comprehension procedure.” However, Mr. Schneier has not shown the results of that specific study, nor has he presented evidence that it occurred. *See* Schneier Report, ¶ 269; GOOG-RDGZ-00090067 (Presentation titled “N3 UXR Strategy Overview and Approach,” May 5, 2020, at -082).

<sup>113</sup> Redish, Janice, “Readability Formulas Have Even More Limitations than Klare Discusses,” *ACM Journal of Computer Documentation*, Vol. 24, No. 3 (August 2000): 132-137, at p. 132.

<sup>114</sup> Redish, Janice and Jack Selzer, “The Place of Readability Formulas in Technical Communication,” *Technical Communication*, Vol. 32, No. 4, (1985): 46-52, at p. 46.

<sup>115</sup> Zhou, Shixiang, Heejin Jeong, and Paul A. Green, “How Consistent Are the Best-Known Readability Equations in Estimating the Readability of Design Standards?” *IEEE Transactions on Professional Communication*, Vol. 60, No. 1 (March 2017): 97-111, at p. 97. *See also*, Redish, Janice, “Readability Formulas Have Even More Limitations Than Klare Discusses,” *ACM Journal of Computer Documentation*, Vol. 24, No. 3 (August 2000): 132-137; Redish, Janice and Jack Selzer, “The Place of Readability Formulas in Technical Communication,” *Technical Communication*, Vol. 32, No. 4 (1985): 46-52; Jarrett, Caroline and Janice Redish, “Readability Formulas: 7 Reasons to Avoid Them and What to Do Instead,” *UX matters*, July 29, 2019, available at <https://www.uxmatters.com/mt/archives/2019/07/readability-formulas-7-reasons-to-avoid-them-and-what-to-do-instead.php>.

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83. Furthermore, Mr. Schneier’s use of the calculator is unreliable. To demonstrate the absurdity of Mr. Schneier’s findings, I use the same readability calculator to analyze the following sentence from Google’s Privacy Policy – “*This Privacy Policy is meant to help you understand what information we collect, why we collect it, and how you can update, manage, export, and delete your information.*”<sup>116</sup> The readability calculator provides the following output for this sentence.<sup>117</sup>

Number of characters (without spaces):	135.00
Number of words:	28.00
Number of sentences:	1.00
Lexical Density:	46.43
Average number of characters per word:	4.82
Average number of syllables per word:	1.75
Average number of words per sentence:	28.00
<i>Indication of the number of years of formal education that a person requires in order to easily understand the text on the first reading</i>	
Gunning Fog index:	18.34
<i>Approximate representation of the U.S. grade level needed to comprehend the text:</i>	
Coleman Liau index:	11.53
Flesch Kincaid Grade level:	15.98
ARI (Automated Readability Index):	15.28
SMOG:	15.25
Flesch Reading Ease:	30.37

84. As shown in the image above, the Gunning Fog Index calculated by Mr. Schneier’s readability calculator indicates that it requires 18.34 years of formal education to “easily understand the text on the first reading,” whereas other metrics such as the Flesch Kincaid Grade Level, SMOG and Automated Readability Index show that readers need to have between 15 to 16 of U.S. grade levels to understand the sentence. Setting aside the conflicting implications of these indices, short sentences are often assigned a lower grade level, even when they do not necessarily improve ease of reading.<sup>118</sup>

<sup>116</sup> “Privacy Policy,” *Google Privacy & Terms*, December 15, 2022, available at <https://policies.google.com/privacy>.

<sup>117</sup> “Test Document Readability,” *Online-Utility.org*, available at [https://www.online-utility.org/english/readability\\_test\\_and\\_improve.jsp](https://www.online-utility.org/english/readability_test_and_improve.jsp).

<sup>118</sup> “An Overview of Using Readability Formulas,” *Readability Formulas*, available at <https://readabilityformulas.com/articles/an-overview-of-readability-formulas.php>.

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85. In fact, when the same sentence from Google’s Privacy Policy is broken into three similarly structured sentences – *“This Privacy Policy is meant to help you understand what information we collect. This Privacy Policy is meant to help you understand why we collect it. This Privacy Policy is meant to help you understand how you can update, manage, export, and delete your information.”* – the readability score improves, as shown in the image below.

Number of characters (without spaces):	218.00
Number of words:	45.00
Number of sentences:	3.00
Lexical Density:	51.11
Average number of characters per word:	4.84
Average number of syllables per word:	1.78
Average number of words per sentence:	15.00
<i>Indication of the number of years of formal education that a person requires in order to easily understand the text on the first reading</i>	
Gunning Fog index:	15.78
<i>Approximate representation of the U.S. grade level needed to comprehend the text:</i>	
Coleman Liau index:	10.73
Flesch Kincaid Grade level:	11.24
ARI (Automated Readability Index):	8.89
SMOG:	13.49
Flesch Reading Ease:	41.21

86. Yet, the results do not necessarily imply that readers understand the three separate sentences better than the original sentence in Google’s Privacy Policy. Moreover, if Google attempted to edit their TOS or Privacy Policy to fit a specific readability score, Google would risk creating text that is “choppy and lacks cohesion.”<sup>119</sup>

### VIII. GOOGLE DOES NOT USE “DARK PATTERNS” IN WAA AND SWAA

87. Mr. Schneier claims that Google “fails to adequately disclose or provide notice of its data collection practices or to provide users with effective privacy controls” and that the “‘privacy controls’ addressed in this lawsuit (Web & App Activity (WAA) and Supplemental Web & App Activity (sWAA)) are merely an illusion.”<sup>120</sup> Mr. Schneier

<sup>119</sup> “An Overview of Using Readability Formulas,” *Readability Formulas*, available at <https://readabilityformulas.com/articles/an-overview-of-readability-formulas.php>.

<sup>120</sup> Schneier Report, ¶ 3.



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also claims that “Google[] uses dark patterns ... to provide users and app developers with a false sense of security that Google respects users’ privacy choices.”<sup>121</sup> In support, Mr. Schneier references a series of past reports and government investigations as evidence of Google’s conduct.<sup>122</sup> However, Mr. Schneier has not explained how the behavior referenced in the literature he relies on is related to the claims at issue in this case. Mr. Schneier also does not adequately define “dark patterns,” nor has he analyzed the presence of “dark patterns” using any scientifically based methodology.

88. Mr. Schneier is a security technologist, and his expertise appears to be related to data security. Therefore, it is unclear what experience, if any, Mr. Schneier is relying on to assess the presence of “dark patterns” in Google’s UI design. Moreover, even if Mr. Schneier has the expertise, Mr. Schneier fails to indicate a methodology to show how he arrived at his specific claims that Google’s UI design exemplifies “dark patterns” that influence user behavior by providing a “false sense of security.” Thus, Mr. Schneier has neither the expertise nor a scientifically based methodology to support his conclusions.
89. “Dark patterns” are a nebulous construct built on a shaky foundation. There are numerous deficiencies of what constitutes a “dark pattern” and widespread inconsistencies within the “dark pattern” literature. As such, Mr. Schneier’s opinions are not based on scientific reasoning or evidence and therefore should not be relied upon. Moreover, the definitions and materials provided by Mr. Schneier fail to demonstrate Google “provide[s] users and app developers with a false sense of security that Google respects users’ privacy choices” relating to Google’s statements and disclosures surrounding WAA and sWAA.<sup>123</sup>

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<sup>121</sup> Schneier Report, ¶ 3.

<sup>122</sup> See, e.g., Schneier Report, ¶¶ 280-295.

<sup>123</sup> Schneier Report, ¶ 3.

*Highly Confidential – Attorneys’ Eyes Only***A. Overview of Mr. Schneier’s Opinions regarding “Dark Patterns”****1. “Dark Patterns” Are a Nebulous Construct**

90. Mr. Schneier claims that “Dark patterns” refers to a “variety of subversive user-design tricks intended to manipulate users.”<sup>124</sup> In his report, Mr. Schneier never clearly or rigorously defines what he means by “dark patterns.” He describes “dark patterns” generally as “subversive user interface designs that manipulate users into making decisions that serve Google’s purposes rather than their own.”<sup>125</sup> According to Mr. Schneier, the use of a “dark pattern” is intended to manipulate users to engage in behaviors at odds with their preferences rather than treat users’ preferences as paramount.
91. Harry Brignull, the user experience consultant Mr. Schneier refers to as having coined the term “dark patterns,” defines it on his blog as a “kind of bad design pattern, one that’s been crafted with great attention to detail, and a solid understanding of human psychology, to trick users into do things they wouldn’t otherwise have done.”<sup>126</sup> Beyond that, Mr. Brignull explains that “[b]lack-hat UX is different: it’s subtle,” and has no clearly defined guidelines.<sup>127</sup> Without explicit and commonly accepted guidelines that clearly define “evil design” and how to detect it, whether a particular user interface design is bad or good is left largely in the eye of the beholder.
92. Another blog post from Mr. Brignull that Mr. Schneier cites, this one on the edited blog *List Apart*, illustrates a “continuum from honest interfaces to dark patterns” on which extreme “dark patterns” are, in Mr. Brignull’s opinion at least, “unarguably deceptive to

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<sup>124</sup> Schneier Report, ¶ 161.

<sup>125</sup> Schneier Report, ¶ 3.

<sup>126</sup> Brignull, Harry, “Dark Patterns: dirty tricks designers use to make people do stuff,” *Harry Brignull’s 90 Percent of Everything*, July 8, 2010, available at <https://90percentofeverything.com/2010/07/08/dark-patterns-dirty-tricks-designers-use-to-make-people-do-stuff/index.html>. Elsewhere, Mr. Brignull describes “dark patterns” as “dirty tricks designers use to make you do stuff.” Brignull, Harry, “Darkpatterns.org: naming and shaming sites that use black hat, anti-usability design patterns,” *Harry Brignull’s 90 Percent of Everything*, August 16, 2010, available at <https://90percentofeverything.com/2010/08/16/darkpatterns-org-naming-and-shaming-sites-that-use-black-hat-anti-usability-design-patterns/index.html>.

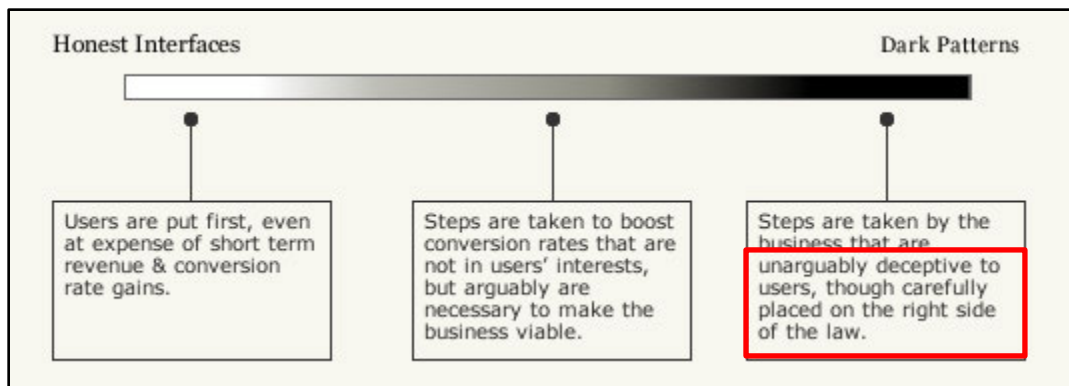
<sup>127</sup> Brignull, Harry, “Darkpatterns.org: naming and shaming sites that use black hat, anti-usability design patterns,” *Harry Brignull’s 90 Percent of Everything*, August 16, 2010, available at <https://90percentofeverything.com/2010/08/16/darkpatterns-org-naming-and-shaming-sites-that-use-black-hat-anti-usability-design-patterns/index.html>.



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users,” but “carefully placed on the right side of the law.”<sup>128</sup> This again illustrates the subjectivity around what constitutes a “dark pattern.” (See **Figure 1**)

**Figure 1: “The continuum from honest interfaces to dark patterns”<sup>129</sup>**



93. To date, the research on “dark patterns” is merely descriptive and the literature is highly fragmented. Interfaces that someone somewhere considers to be less than honest are categorized as some type of “dark pattern” and given a name, often sensationalistic (e.g. “sneaking”<sup>130</sup>), that implies a deliberate intent to deceive. There is no single, consensus definition of what constitutes a “dark pattern,” no research that illuminates what makes a particular interface a “dark pattern,” no coherent specification of the cognitive mechanism by which “dark patterns” operate on users, nor standards or norms for identifying problematic “dark patterns.”<sup>131</sup> Indeed, the “current academic discourse about “dark patterns” is built on a shaky foundation.”<sup>132</sup> Until such time that the current

<sup>128</sup> Brignull, Harry, “Dark Patterns: Deception vs. Honesty in UI Design,” *A List Apart*, November 1, 2011, available at <https://alistapart.com/article/dark-patterns-deception-vs-honesty-in-ui-design>.

<sup>129</sup> Figure 3 from Brignull, Harry, “Dark Patterns: Deception vs. Honesty in UI Design,” *A List Apart*, November 1, 2011, available at <https://alistapart.com/article/dark-patterns-deception-vs-honesty-in-ui-design>.

<sup>130</sup> Gray, Colin M., Yubo Kou, Bryan Battles, Joseph Hoggatt, and Austin L. Toombs, “The Dark (Patterns) Side of UX Design,” *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems*, No. 534 (April 2018): 1-14, at p. 5.

<sup>131</sup> Mathur, Arunesh, Jonathan Mayer, and Mihir Kshirsagar, “What Makes a Dark Pattern...Dark? Design Attributes, Normative Considerations, and Measurement Methods,” *CHI Conference on Human Factors in Computing Systems (CHI ‘21)*, (May 8-13, 2021): 1-27.

<sup>132</sup> Mathur, Arunesh, Jonathan Mayer, and Mihir Kshirsagar, “What Makes a Dark Pattern...Dark? Design Attributes, Normative Considerations, and Measurement Methods,” *CHI Conference on Human Factors in Computing Systems (CHI ‘21)*, (May 8-13, 2021): 1-27, at p. 1.

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descriptive work on “dark patterns” can be grounded in scientific methods, attempting to classify a particular UI as a “dark pattern” is neither reliable nor valid.<sup>133</sup>

94. In addition to being descriptive and highly fragmented, the literature lacks consistency. For example, even when authors agree on a category of “dark pattern,” there are inconsistent definitions of the behavior that falls under the category. Such inconsistency is plainly evident across definitions that Mr. Schneier invokes when introducing particular categories of “dark patterns.” For example, Mr. Schneier cites three sources, which he groups together as defining the “dark pattern” of “sneaking,” when arguing that Google’s WAA Help Page, disclosures accompanying the WAA and sWAA toggles, and disclosures to app developers exemplify “dark patterns.”<sup>134</sup> However, the example behaviors of “sneaking” are inconsistent across definitions as each applies to a different context, some of which are not relevant to the current matter. The three definitions that Mr. Schneier relies upon to define the category of “sneaking” are provided in **Table 1** below:

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<sup>133</sup> I have reviewed the most recent literature surrounding “dark patterns” definitions, including sources not considered by Mr. Schneier. My conclusion that there are inconsistent definitions of “dark patterns” and that there is no scientific method to identify “dark patterns” remains unchanged. For example, one study showed that there are over 62 types of “dark patterns” described in prior research. *See* Mildner, Thomas, Philip Doyle, Gian-Luca Savino, and Rainer Malaka, “Rules Of Engagement: Levelling Up To Combat Unethical CUI Design,” CUI’22 Proceedings of the 4<sup>th</sup> Conference on Conversational User Interfaces, No. 26, (July 2022): 1-5, at p. 3. Moreover, a 2022 study conducted showed that there is no statistically significant difference between an end-user and a “dark pattern” expert’s ability to identify “dark patterns.” *See* Keleher, Maxwell, Fiona Westin, Preethi Nagabandi, and Sonia Chiasson, “How Well Do Experts Understand End-Users’ Perceptions of Manipulative Patterns?” NordiCHI’22 Nordic Human-Computer Interaction Conference, No. 52, (October 2022): 1-21. For the purposes of this report, I only present my analysis of “dark pattern” sources relied upon by Mr. Schneier.

<sup>134</sup> Schneier Report, ¶¶ 311-313, 332, 385.

*Highly Confidential – Attorneys’ Eyes Only***Table 1: Contrasting the Multiple Definitions of “Sneaking” Relied Upon by Mr. Schneier**

Colin M. Gray category of “sneaking” <sup>135</sup>	FTC category of “sneaking or information hiding” <sup>136</sup>	EU category of “left in the dark” <sup>137</sup>
We define sneaking as an attempt to hide, disguise, or delay the divulging of information that has relevance to the user. Sneaking often occurs in order to make the <b>user perform an action they may object to if they had knowledge</b> of it. Sneaking behaviors may include additional undisclosed costs or undesired effects from a particular action.	<p><b>Automatically adding items to the shopping cart without a shopper’s permission OR Tricking a shopper into buying unwanted items</b> by using a pre-checked box.</p> <p>Hiding material information or significant product limitations from people.</p> <p>Example: hiding info in fine print, in lengthy terms of service documents, behind nondescript hyperlinks, or in pop-up boxes that only appear if someone hovers over the right thing.</p>	An interface is designed in a way <b>to hide information or data protection control tools or to leave users unsure of how their data is processed</b> and what kind of control they might have over it regarding the exercise of their rights.

Note: Emphasis added with bolded text

95. The inconsistency across the above three definitions is apparent. Specifically, Dr. Gray’s definition of “sneaking” involves scenarios where users affirmatively opt-in to a feature due to hidden, disguised, or a delayed disclosure of information and suffer undesired results. In contrast, the FTC’s definition of “sneaking or information hiding” is focused on consumer shopping experiences and relates to behavior during the checkout process where items are automatically added to a shopper’s cart without permission, or using pre-checked boxes to trick a shopper into buying unwanted items. Additionally, the EU’s category of “left in the dark” differs contextually from both Dr. Gray’s and the FTC’s definitions described above, as the category relates to data protection control tools. Thus,

<sup>135</sup> Gray, Colin M., Yubo Kou, Bryan Battles, Joseph Hoggatt, and Austin L. Toombs, “The Dark (Patterns) Side of UX Design,” Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems, No. 534 (April 2018): 1-14, at p. 6.

<sup>136</sup> Staff Report, “Bringing Dark Patterns to Light,” *US Federal Trade Commission*, September 2022, available at [https://www.ftc.gov/system/files/ftc\\_gov/pdf/P214800%20Dark%20Patterns%20Report%209.14.2022%20-%20FINAL.pdf](https://www.ftc.gov/system/files/ftc_gov/pdf/P214800%20Dark%20Patterns%20Report%209.14.2022%20-%20FINAL.pdf), at pp. 22-23.

<sup>137</sup> Jelinek, Andrea, et al., “Dark patterns in social media platform interfaces: How to recognise and avoid them,” *European Data Protection Board*, March 14, 2022, available at [https://edpb.europa.eu/system/files/2022-03/edpb\\_03-2022\\_guidelines\\_on\\_dark\\_patterns\\_in\\_social\\_media\\_platform\\_interfaces\\_en.pdf](https://edpb.europa.eu/system/files/2022-03/edpb_03-2022_guidelines_on_dark_patterns_in_social_media_platform_interfaces_en.pdf), at p. 8.

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a comparison of the “sneaking” definitions shows that the contexts and behavior examples provided are highly inconsistent.

96. Mr. Schneier also relies on three sources for defining the “dark pattern” of “nagging” when arguing that Google’s WAA/sWAA “consent bump” prompt exemplifies a “dark pattern.”<sup>138</sup> Again, the three definitions are inconsistent as they vary widely in the level of user contact apparently needed to establish that “nagging” has occurred. The definitions cited by Mr. Schneier in defining the category of “nagging” are provided in **Table 2** below:

**Table 2: Contrasting the Multiple Definitions of “Nagging” Relied Upon by Mr. Schneier**

Colin M. Gray category of “nagging” <sup>139</sup>	FTC category of “nagging” <sup>140</sup>	EU category of “continuous prompting” <sup>141</sup>
We define nagging as a <b>minor redirection</b> of expected functionality that may persist over one or more interactions. Nagging often manifests as a repeated intrusion during normal interaction, where the <b>user’s desired task is interrupted one or more times</b> by other tasks not directly related to the one the user is focusing on. Nagging behaviors may include pop-ups that obscure the interface, audio notices that distract the user, or other actions that obstruct or otherwise redirect the user’s focus.	<b>Asking repeatedly and disruptively</b> if a user wants to take an action OR Making a request that doesn’t let the user permanently decline – and then repeatedly prompting them with the request.  Example: asking users to provide their data or turn on cookies then repeatedly presenting the choices as “Yes” or “Not Now” instead of “Yes” or “No.”	The <b>Continuous prompting</b> dark pattern occurs when users are pushed to provide more personal data than necessary for the processing purposes or to consent to another use of their data, by being <b>repeatedly asked</b> to provide additional data and offered arguments why they should provide it. Users are likely to end up giving in, i.e. accepting to provide more data or to consent to another processing, as they are <b>wearied from having to express a choice each time they use the platform.</b>

Note: Emphasis added with bolded text

<sup>138</sup> Schneier Report, ¶¶ 370-382. Mr. Schneier states that a “consent bump” refers to a “screen that enables the user to give or revoke consent.” See Schneier Report, ¶ 377.

<sup>139</sup> Gray, Colin M., Yubo Kou, Bryan Battles, Joseph Hoggatt, and Austin L. Toombs, “The Dark (Patterns) Side of UX Design,” Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems, No. 534 (April 2018): 1-14, at p. 5.

<sup>140</sup> Staff Report, “Bringing Dark Patterns to Light,” *US Federal Trade Commission*, September 2022, available at [https://www.ftc.gov/system/files/ftc\\_gov/pdf/P214800%20Dark%20Patterns%20Report%209.14.2022%20-%20FINAL.pdf](https://www.ftc.gov/system/files/ftc_gov/pdf/P214800%20Dark%20Patterns%20Report%209.14.2022%20-%20FINAL.pdf), at p. 24.

<sup>141</sup> Jelinek, Andrea, et al., “Dark patterns in social media platform interfaces: How to recognise and avoid them,” *European Data Protection Board*, March 14, 2022, available at [https://edpb.europa.eu/system/files/2022-03/edpb\\_03-2022\\_guidelines\\_on\\_dark\\_patterns\\_in\\_social\\_media\\_platform\\_interfaces\\_en.pdf](https://edpb.europa.eu/system/files/2022-03/edpb_03-2022_guidelines_on_dark_patterns_in_social_media_platform_interfaces_en.pdf), at p. 14.

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97. There are clear differences across the above three definitions regarding the level of contact required to satisfy the criteria to establish the “dark pattern of “nagging.” For example, Dr. Gray’s definition of “nagging” involves interrupting a user one or more times and redirecting their attention to unrelated tasks. However, the FTC’s definition of “nagging” implies a higher level of interruption is required, as the behavior necessary to fulfill the definition is described as repeated and disruptive in nature. Finally, the EU’s category of “continuous prompting” differs in the level of “nagging” from both Dr. Gray’s and FTC’s definitions. More specifically, the EU’s category of “continuous prompting” requires repeated behavior and contains an element of user weariness, but the conduct does not need to be disruptive in nature as required by the FTC.
98. Mr. Schneier also identifies an additional number of “dark patterns” to support the argument that Google’s statements about privacy and user control exemplifies “dark patterns.”<sup>142</sup> The “dark patterns” include “aesthetic manipulation,” “misdirection,” and “emotional steering.”<sup>143</sup> The definitions cited by Mr. Schneier for each category are provided in **Table 3** below:

**Table 3: Contrasting the Definitions of “aesthetic manipulation,” “misdirection,” and “emotional steering” Relied Upon by Mr. Schneier**

Colin M. Gray category of “interface interference” and subcategory “aesthetic manipulation” <sup>144</sup>	FTC category of “misdirection” <sup>145</sup>	EU category of “emotional steering” <sup>146</sup>
We define interface interference as any <b>manipulation of the user interface</b> that privileges specific actions over others, thereby	Using <b>style and design</b> to focus users’ attention on one thing in order to <b>distract their attention</b> from another.	With the Emotional Steering dark pattern, <b>wordings or visuals</b> are used in a way that <b>conveys</b> information to users in either a

<sup>142</sup> Schneier Report, ¶¶ 340-342.

<sup>143</sup> Schneier Report, ¶¶ 340-342.

<sup>144</sup> Gray, Colin M., Yubo Kou, Bryan Battles, Joseph Hoggatt, and Austin L. Toombs, “The Dark (Patterns) Side of UX Design,” Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems, No. 534 (April 2018): 1-14, at p. 7.

<sup>145</sup> Staff Report, “Bringing Dark Patterns to Light,” *US Federal Trade Commission*, September 2022, available at [https://www.ftc.gov/system/files/ftc\\_gov/pdf/P214800%20Dark%20Patterns%20Report%209.14.2022%20-%20FINAL.pdf](https://www.ftc.gov/system/files/ftc_gov/pdf/P214800%20Dark%20Patterns%20Report%209.14.2022%20-%20FINAL.pdf), at p. 23.

<sup>146</sup> Jelinek, Andrea, et al., “Dark patterns in social media platform interfaces: How to recognise and avoid them,” *European Data Protection Board*, March 14, 2022, available at [https://edpb.europa.eu/system/files/2022-03/edpb\\_03-2022\\_guidelines\\_on\\_dark\\_patterns\\_in\\_social\\_media\\_platform\\_interfaces\\_en.pdf](https://edpb.europa.eu/system/files/2022-03/edpb_03-2022_guidelines_on_dark_patterns_in_social_media_platform_interfaces_en.pdf), at p. 16.

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<p><b>confusing</b> the user or limiting discoverability of important action possibilities... Interface interference manifests as numerous individual visual and interactive deceptions, and is thus our most involved strategy with three subtypes: hidden information, preselection, and aesthetic manipulation...</p> <p>[Aesthetic manipulation relates to] instances where manipulation of aesthetic characteristics leads to <b>misunderstanding of hierarchy, content type, or unrealistic sense of urgency</b>.</p>	<p>Example: presenting the subtotal price in a bright green highlighted box, then listing additional mandatory taxes and fees below in a non-highlighted section so users don’t notice their final total will be higher.</p>	<p><b>highly positive outlook</b>, making users feel good or safe, or a <b>highly negative one</b>, making users feel anxious or guilty. The manner in which the information is presented to users influences their emotional state in a way that is likely to lead them to act against their data protection interests</p>
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Note: Emphasis added with bolded text

99. Although the three “dark pattern” categories clearly vary by name and behavior, Mr. Schneier invokes all three to support a singular argument and states that two of the three “roughly correspond” to one another.<sup>147</sup> However, there are distinct differences among the definitions that Mr. Schneier fails to recognize. This calls into question how he intended to apply these “dark patterns” categories to Google. Additionally, it is not possible to determine whether Mr. Schneier intended to group all three of the above definitions into the same category of “dark pattern,” as he fails to provide his perspective on how any of these three definitions apply to the facts of this case. What is clear, as described below, is that at least two of the definitions are not contextually applicable to Google’s statements about privacy and user control.
100. A brief review of the definitions in **Table 3** shows that there is an inconsistency in the “dark pattern” behavior described. Specifically, Dr. Gray’s definition of “aesthetic manipulation” focuses on the manipulation of user interfaces in a manner that creates a misunderstanding of hierarchy, content type, or an unrealistic sense of urgency.<sup>148</sup> An example of misunderstanding of hierarchy includes visually providing users with one or

<sup>147</sup> Schneier Report, ¶¶ 340-343. Mr. Schneier states that “Google’s behavior around privacy controls in general and WAA/sWAA in particular exemplifies interface interference, misdirection, and emotional steering.”

<sup>148</sup> Gray, Colin M., Yubo Kou, Bryan Battles, Joseph Hoggatt, and Austin L. Toombs, “The Dark (Patterns) Side of UX Design,” Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems, No. 534 (April 2018): 1-14, at p. 7.

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more options in a hierarchical manner where one option takes precedence over others, when instead the options should be parallel and equal.<sup>149</sup> In contrast, the FTC’s definition of “misdirection” involves creating an interface that utilizes style and design to distract a user’s attention away from a portion of the screen.<sup>150</sup> Lastly, the EU’s category of “emotional steering” relates to using wording or visuals on the screen to influence a user’s emotional state in a negative or positive manner that is likely to lead them to act against their data protection interests.<sup>151</sup> Mr. Schneier states that “emotional steering” roughly corresponds to “aesthetic manipulation,” but the definitions are clearly not related to each other.<sup>152</sup>

101. As I discuss in detail below, Google designs its interfaces with the user in mind, providing users with control and choices according to the principle of progressive disclosure.<sup>153</sup> Additionally, Google’s UI design lets users review information at varying levels of granularity depending on their unique preferences, and decide whether they would like to, for example, click on a link to learn more. My analysis of Google’s UI below will show that Mr. Schneier’s “dark pattern” claims are unfounded and unsubstantiated.

## **2. Mr. Schneier’s Opinions Are Not Based on Scientific Reasoning or Evidence**

102. In reviewing the Complaint, I was not able to locate even a single instance of the term “dark pattern” and I am unaware of any allegation in this case that Google’s UI relating to WAA and sWAA settings constitutes a “dark pattern.”

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<sup>149</sup> Gray, Colin M., Yubo Kou, Bryan Battles, Joseph Hoggatt, and Austin L. Toombs, “The Dark (Patterns) Side of UX Design,” Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems, No. 534 (April 2018): 1-14, at p. 7.

<sup>150</sup> Staff Report, “Bringing Dark Patterns to Light,” *US Federal Trade Commission*, September 2022, available at [https://www.ftc.gov/system/files/ftc\\_gov/pdf/P214800%20Dark%20Patterns%20Report%209.14.2022%20-%20FINAL.pdf](https://www.ftc.gov/system/files/ftc_gov/pdf/P214800%20Dark%20Patterns%20Report%209.14.2022%20-%20FINAL.pdf), at p. 23.

<sup>151</sup> Jelinek, Andrea, et al., “Dark patterns in social media platform interfaces: How to recognise and avoid them,” *European Data Protection Board*, March 14, 2022, available at [https://edpb.europa.eu/system/files/2022-03/edpb\\_03-2022\\_guidelines\\_on\\_dark\\_patterns\\_in\\_social\\_media\\_platform\\_interfaces\\_en.pdf](https://edpb.europa.eu/system/files/2022-03/edpb_03-2022_guidelines_on_dark_patterns_in_social_media_platform_interfaces_en.pdf), at p. 16.

<sup>152</sup> Schneier Report, ¶ 342.

<sup>153</sup> See **Section VII.A** above.



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103. Mr. Schneier’s reliance on “dark pattern” categories as applied to this case does not appear to be scientific testimony because, as stated earlier, the current descriptive work on “dark patterns” is not grounded in scientific methods. Additionally, Mr. Schneier fails to properly apply any definition of “dark patterns,” or any related methodology, to the facts of the case prior to drawing his conclusions. Rather, he simply compiles descriptions of various matters that do not involve application of “dark patterns”, and that have no connection to the facts of this case, for the purpose of shedding a negative light on Google. For example, soon after introducing the definition of a “dark pattern” in his report, Mr. Schneier provides examples of recent enforcement efforts by the FTC unconnected to Google.<sup>154</sup> These enforcement examples are completely unrelated to the facts of this matter. Specifically, the deceptive behavior cited across the cases provided relate to hiding full costs of leasing payment plans, hidden loan fees, misleading statements about free tax filing services, misrepresentations regarding credit card pre-approval, obstacles to canceling contracts, and duping consumers into making unintentional purchases.<sup>155</sup> Mr. Schneier also makes references to fines levied on Google by international organizations.<sup>156</sup> However, the fines relate to Google’s business relationships with device manufacturers, which is completely irrelevant to this case or to the concept of “dark patterns.”
104. To the extent Mr. Schneier asserts that any attempt to influence a user into action is a “dark pattern,” that would imply that any and all consumer advertising or user-facing activity by any business could be construed as a “dark pattern.” It is the goal of business to persuade consumers to buy or consume certain products or services. Such goals are appropriate and do not constitute, in and of themselves, “dark patterns.” It is therefore not at all clear where Mr. Schneier proposes to draw the line between the legitimate efforts of businesses to influence consumers and deceptive efforts to trick consumers into doing things against their wishes. Yet, Mr. Schneier asserts without support that Google has somehow crossed that line.

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<sup>154</sup> Schneier Report, ¶ 174.

<sup>155</sup> Schneier Report, ¶ 174.

<sup>156</sup> Schneier Report, ¶ 199-200.



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105. For example, Mr. Schneier states that due to the scale of Google, and the range of information that it collects about its users, Google’s data collection practices “can be characterized as a form of pervasive monitoring.”<sup>157</sup> He then asserts that “[pervasive monitoring] is an attack on the privacy of internet users and organisations.”<sup>158</sup> However, Mr. Schneier makes this determination in the absence of evidence and without proper analysis. Rather than stating that Google’s data collection practices “*can be* characterized as a form of pervasive monitoring,” (emphasis added) Mr. Schneier should instead provide a clear definition of pervasive monitoring, apply it to the facts of this case to determine whether pervasive monitoring is or is not present, and then explain why the behavior constitutes a “dark pattern.”<sup>159</sup> Contrary to Mr. Schneier’s assertions, Google provides users with a myriad of privacy controls and users consent to the collection of their data.

**B. Google’s WAA and sWAA Do Not Exemplify “Dark Patterns”**

106. As stated earlier, this case involves individuals who turned off Google WAA and/or sWAA settings but whose devices continued transmitting data to Google as a result of code embedded within non-Google apps—namely the Google Analytics for Firebase SDK and the Google Mobile Ads SDK. Mr. Schneier’s main argument is that the disclosures surrounding WAA and/or sWAA settings exemplify a “dark pattern” because the disclosures do not include details regarding Google’s separate business-facing products and services, which operate independently from a user’s Google Account. In this section I detail why Google’s WAA and sWAA settings and their corresponding disclosures do not exemplify “dark patterns.”

107. First, in my research I have not found any literature that would classify disclosures like those accompanying Google’s WAA and sWAA settings as a “dark pattern.” Moreover, the allegations at issue do not meet the criteria for any of the “dark pattern” category definitions that Mr. Schneier provides within his report, especially because the

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<sup>157</sup> Schneier Report, ¶ 188.

<sup>158</sup> Schneier Report, ¶ 188; Farrell, Stephen and Hannes Tschofenig, “Pervasive monitoring is an attack,” Best Current Practice, Vol. 188, Internet Engineering Task Force, (May 2014): 1-6, at p. 2.

<sup>159</sup> Schneier Report, ¶ 188.

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allegations are about users who already have WAA and sWAA turned off, not users who were manipulated into doing anything they would not otherwise have done.

108. Second, Mr. Schneier’s claim appears to rest on his own interpretation of the language in the disclosures surrounding Google’s WAA and sWAA, despite clear and unambiguous language that the WAA and sWAA settings were designed exclusively to manage the saving of activity in a user’s Google Account. Principles of good UI design support the appropriateness of limiting disclosures, especially in the context of disclosures relating to a user’s Google Account, to only what is relevant for a user’s Google Account. Providing information about the virtually unlimited set of features that the WAA settings *do not* control outside of their Google Accounts would overwhelm users and keep them from what they actually need to know about that setting.
109. Third, Google not only encourages, but requires third-party apps that utilize the Firebase SDK to include disclosures in their privacy policy, which state that Google is collecting and saving information related to their activity on such apps. This makes sense from a UI design perspective: disclosures related to data collection pertaining to third-party apps belong in the third-party app user agreements.

### 1. Google’s WAA Help Page

110. As mentioned in **Section VIII.A.1**, Mr. Schneier offers definitions of the “dark pattern” category of “sneaking” from several sources and interprets all the definitions as equivalent. However, the definitions are inconsistent, subjective, and lack a reliable or valid foundation. Nevertheless, Mr. Schneier cites these inconsistent sources in support of an argument that Google engages in “sneaking” and therefore Google’s WAA Help Page exemplifies “dark patterns.” Mr. Schneier claims that Google hides important information on the WAA Help Page, and “fails to explicitly distinguish between the collection and saving of web and app activity data within one’s ‘Google Account’ and the collection and saving of the same data outside of one’s ‘Google Account.’”<sup>160</sup>

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<sup>160</sup> Schneier Report, ¶ 315.

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111. Mr. Schneier speculates that the “negative implication” of the language on the WAA Help Page is that “disabling WAA and sWAA will disable Google’s collection, retention, and utilization of data about one’s online activity”<sup>161</sup> as it relates to both a user’s Google Account, as well as Google’s other business-facing products and services that are entirely separate from a user’s Google Account. Mr. Schneier offers no evidence that his own interpretation of the language reflects a common user perception. Indeed, an empirical study that measures user perceptions related to WAA and sWAA settings would be required to reach such conclusions.
112. In reaching his own interpretation that the disclosures within Google’s WAA Help Page applies more broadly than to a user’s “Google Account,” Mr. Schneier conveniently ignores that the WAA Help Page is in fact nested within the “Google Account Help” page, despite referencing it as such in his report.<sup>162</sup> In addition, the WAA Help Page explicitly states that it pertains to what is saved in a user’s Google Account. This is made clear in the very first line that appears in the help page, as it states “If Web & App Activity is turned on, your searches and activity from other Google services are *saved in your Google Account*,”<sup>163</sup> (emphasis added) a statement that Mr. Schneier also cites in his report.<sup>164</sup> Such disclosures that present only the information relevant for the context that the setting is designed to manage are consistent with the principles of good UI design. Mr. Schneier’s suggestion of providing information about features and products outside of the scope of a user’s Google Account that the WAA settings do not control would overwhelm users and would be inconsistent with the principles of good UI design.
113. Mr. Schneier also analyzes the WAA Help Page in a vacuum. Mr. Schneier fails to communicate that users do not adjust their Web & App Activity settings from the WAA Help Page, but instead are required to navigate to the Activity Controls page to make any changes. By doing so, users are exposed to additional disclosures which clearly

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<sup>161</sup> Schneier Report, ¶ 316.

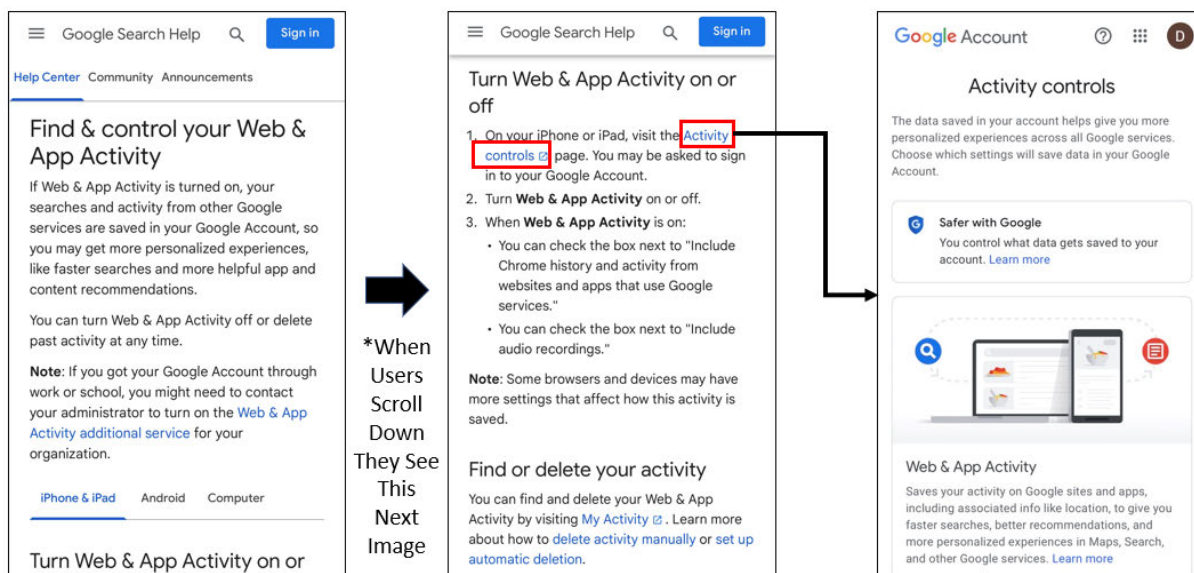
<sup>162</sup> See, e.g., Schneier Report, fn. 362, 363, 364.

<sup>163</sup> “Find & control your Web & App Activity,” *Google Account Help*, available at <https://support.google.com/accounts/answer/54068>.

<sup>164</sup> Schneier Report, ¶ 314.

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communicate that all settings within the page apply only to controlling data saved in their Google Account. Accordingly, when a user turns WAA on or off, they have been exposed to numerous disclosures that state explicitly that the setting applies to saving activity in their Google Account. Similarly to the WAA Help Page, the Activity Controls page does not, nor is it supposed to, communicate that WAA, whether on or off, controls third-party apps’ use of analytics. Mr. Schneier also ignores the many informational hyperlinks that are available to users within the page, some of which provide context to WAA privacy controls. Below are screenshots that show the navigational path users can follow when they choose to turn off the WAA setting from Google’s WAA Help Page.



114. More broadly, the behavior described in Dr. Gray’s definition does not apply to Google’s WAA Help Page. As previously shown in **Table 1**, Dr. Gray defines “sneaking” as

“an attempt to hide, disguise, or delay the divulging of information that has relevance to the user. Sneaking often occurs in order to make the user perform an action they may object to if they had knowledge of it. Sneaking behaviors may

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include additional undisclosed costs or undesired effects from a particular action”.<sup>165</sup>

115. This case does not allege that users suffered undesired results when turning on the WAA toggle. It is about what users believe happens after they turn it off. Specifically, users allegedly do not understand that an entirely separate, business-facing product (Google Analytics) can still collect their information when they are using third-party websites like the New York Times. This cannot constitute “sneaking” because, as discussed above, the WAA toggle is only described as affecting a user’s Google Account. The WAA disclosures therefore cannot possibly result in “undesired effects” with respect to Google Analytics. Accordingly, Mr. Schneier’s reliance on Dr. Gray’s definition of “sneaking” to prove that Google’s WAA Help Page exemplifies a “dark pattern,” is unfounded.
116. WAA disclosures similarly cannot result in “undesired effects” with respect to information that may be collected by apps that use Google AdMob or Ad Manager by embedding the Google Mobile Ads SDK (“GMA SDK”). The WAA disclosures present the relevant information that users need to know about the WAA setting to understand its function—controlling what user activity may be saved to a user’s account for purposes of personalization. These disclosures do not imply that GMA SDK cannot save app activity data at all. They do not, and are not intended to, communicate that WAA, whether on or off, controls third-party apps’ use of ads-related analytics. Once again, this cannot constitute “sneaking” because, as discussed above, the WAA toggle is only described as affecting a user’s Google Account.
117. Mr. Schneier also fails to specify how Google’s WAA Help Page satisfies either of the other two definitions of “sneaking” he cites. Mr. Schneier’s approach reinforces my observation that there exists no objective foundation for identifying a “dark pattern.”

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<sup>165</sup> Gray, Colin M., Yubo Kou, Bryan Battles, Joseph Hoggatt, and Austin L. Toombs, “The Dark (Patterns) Side of UX Design,” Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems, No. 534 (April 2018): 1-14, at p. 6.

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118. Specifically, Mr. Schneier cites the FTC’s category of “sneaking or information hiding” to support his conclusion that Google’s WAA Help Page exemplifies “dark patterns.”<sup>166</sup> As previously shown in **Table 1**, the FTC defines “sneaking or information hiding” as

“Automatically adding items to the shopping cart without a shopper’s permission  
OR Tricking a shopper into buying unwanted items by using a pre-checked box  
Hiding material information or significant product limitations from people  
Example: hiding info in fine print, in lengthy terms of service documents, behind  
nondescript hyperlinks, or in pop-up boxes that only appear if someone hovers  
over the right thing.”<sup>167</sup>

119. Again, neither context discussed in the above definition applies to Google’s WAA Help Page. Specifically, the first portion of the FTC’s definition is in relation to “dark patterns” associated with consumer shopping experiences, which is not relevant to the WAA Help Page or topics discussed in this matter. Similarly, the second portion of the FTC’s definition of “sneaking or information hiding” relates to affirmatively hiding material information deep within lengthy documents, or behind nondescript hyperlinks and pop-up boxes. Here, the WAA Help Page clearly describes the purpose and benefits associated with the WAA toggle. Accordingly, Mr. Schneier’s reliance on the FTC’s definition of “sneaking” to prove that Google’s WAA Help Page exemplifies a “dark pattern” is unfounded.
120. Mr. Schneier also relies on the EU’s category of “left in the dark” to support his conclusion that Google’s WAA Help Page exemplifies “dark patterns.”<sup>168</sup> The EU defines “left in the dark” as

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<sup>166</sup> Schneier Report, ¶ 312.

<sup>167</sup> Staff Report, “Bringing Dark Patterns to Light,” *US Federal Trade Commission*, September 2022, available at [https://www.ftc.gov/system/files/ftc\\_gov/pdf/P214800%20Dark%20Patterns%20Report%209.14.2022%20-%20FINAL.pdf](https://www.ftc.gov/system/files/ftc_gov/pdf/P214800%20Dark%20Patterns%20Report%209.14.2022%20-%20FINAL.pdf).

<sup>168</sup> Schneier Report, ¶ 313.

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“an interface is designed in a way to hide information or data protection control tools or to leave users unsure of how their data is processed and what kind of control they might have over it regarding the exercise of their rights.”<sup>169</sup>

121. The EU also provides examples of the ways users may be “left in the dark.” The scenarios include users being presented with conflicting information, ambiguous wording, or language discontinuity. None of the “left in the dark” scenarios apply here as the language in Google’s WAA Help Page clearly describes the purpose and benefits of the WAA toggle. Moreover, Mr. Schneier cannot credibly claim that Google leaves users in the dark about how third-party apps using Google Analytics for Firebase may use their data because Google requires all apps using its analytics SDKs to disclose their use of analytics to users.<sup>170</sup> This includes the Firebase and Google Mobile Ads SDKs.<sup>171</sup> Mr. Schneier fails to explain how Google’s WAA Help Page presents users with conflicting information, ambiguous wording related to activity saved outside of a user’s Google Account, or language discontinuity. Accordingly, Mr. Schneier’s reliance on the EU’s definition of “left in the dark” to prove that Google’s WAA Help Page exemplifies a “dark pattern” is unfounded.

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<sup>169</sup> Jelinek, Andrea, et al., “Dark patterns in social media platform interfaces: How to recognise and avoid them,” *European Data Protection Board*, March 14, 2022, available at [https://edpb.europa.eu/system/files/2022-03/edpb\\_03-2022\\_guidelines\\_on\\_dark\\_patterns\\_in\\_social\\_media\\_platform\\_interfaces\\_en.pdf](https://edpb.europa.eu/system/files/2022-03/edpb_03-2022_guidelines_on_dark_patterns_in_social_media_platform_interfaces_en.pdf), at pp. 2-3.

<sup>170</sup> See Google Analytics Terms of Service, *Google Marketing Platform*, available at <https://marketingplatform.google.com/about/analytics/terms/us/> (“You must post a Privacy Policy and that Privacy Policy must provide notice of Your use of cookies, identifiers for mobile devices (e.g., Android Advertising Identifier or Advertising Identifier for iOS) or similar technology used to collect data. You must disclose the use of Google Analytics, and how it collects and processes data. This can be done by displaying a prominent link to the site ‘How Google uses information from sites or apps that use our services’, (located at [www.google.com/policies/privacy/partners/](http://www.google.com/policies/privacy/partners/), or any other URL that Google may provide from time to time). You will use commercially reasonable efforts to ensure that a User is provided with clear and comprehensive information about, and consents to, the storing and accessing of cookies or other information on the User’s device where such activity occurs in connection with the Service and where providing such information and obtaining such consent is required by law.”).

<sup>171</sup> See, e.g., “Google Publisher Policies,” *Google AdMob Help*, available at <https://support.google.com/admob/answer/10502938> (“Publishers must: have and abide by a privacy policy that clearly discloses any data collection, sharing and usage that takes place on any site, app, email publication or other property as a consequence of your use of Google products. The privacy policy must disclose to users that third parties may be placing and reading cookies on your users’ browsers, or using web beacons to collect information as a result of ad serving on your website. To comply with this disclosure obligation with respect to Google’s use of data, you have the option to display a prominent link to How Google uses data when you use our partners’ sites or apps.”).



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122. Mr. Schneier also cites articles, Google employee statements, and plaintiff testimony in support of his conclusions. However, my analysis in the table below shows that the sources relied upon by Mr. Schneier do not support the claims that he asserts.

**Table 4: Responses to Mr. Schneier’s Claims that Google’s WAA Help Page Exemplifies “Dark Patterns”**

Schneier Report	Schneier’s Claims	Response to Mr. Schneier’s Claims
¶ 321, FN 366 (Fogarty, Kelsey, and Zachary McAuliffe, “Here’s How You Can Stop Google From Following You On Vacation,” <i>CNET</i> , May 4, 2023, available at <a href="https://www.cnet.com/tech/services-and-software/heres-how-you-can-stop-google-from-following-you-on-vacation/">https://www.cnet.com/tech/services-and-software/heres-how-you-can-stop-google-from-following-you-on-vacation/</a> )	A 2022 CNet article, titled “Is Google tracking you? Here’s how to check and stop it,” directs users to “Stop Google from collecting your web and app activity” by turning off the WAA controls, with no further discussion of the data collection that continues to occur even after this is done.	This article is about shutting off location tracking, and its mentions of WAA are ancillary and not relevant to this case. Mr. Schneier makes a superficial connection between the complaints raised by the authors of this article and the facts underlying Plaintiffs’ allegations. At issue in this case is app activity data that Google received from developers using GA4F. It is not the type of data contemplated by this article, which is GAIA-tied web and app activity, not pseudonymized data that Google processes for analytics purposes.
¶ 322-324, FN 367-370 (Ruemmler Deposition, pp. 72:22-25, 73:1-3, 74:13-14, 79:18-20, 135:20-25, 136:1, 155:16-25, 156:1-7)	Google’s employees were fooled, too. In his deposition, Chris Ruemmler stated that he had been unclear about what exactly WAA controlled in 2019, then again in 2020, even as he was involved in discussions about the name “Web & App Activity” and the disclosures made to users about WAA. He described how, when the WAA control is turned off, user activity continues to be collected by Google—a concept that he, a Google software engineer, had not previously understood.	Mr. Schneier does not give the full picture. In his deposition, Mr. Ruemmler explained that his experience at Google was in the Workspace and Gmail team, where “everything is GAIA tied.” <sup>172</sup> So, he had assumed that “if it’s not GAIA tied, it’s not there.” Mr. Ruemmler’s knowledge on how Google may collect user activity was rooted in his work separate from WAA. Mr. Ruemmler also testified that he had a “misunderstanding with the way WAA works,” and further stated that “after gaining more knowledge,” he became aware of Google’s “other mechanisms used to store the data at Google

<sup>172</sup> Deposition of Christopher Ruemmler, September 9, 2022 (“Ruemmler Deposition”), pp. 74:4-24, 75:23-77:11.

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		anonymously.” <sup>173</sup>
¶ 324, FN 371 (GOOG-RDGZ-00024709, at -710-711)	Mr. Ruemmler encouraged revisions to the WAA Help Page in a July 2019 email, warning that “[t]he WAA and other controls imply we don’t log the data, but obviously we do. We need to change the description to indicate even with the control off, Google retains this data and uses it for X purposes” and to “indicate that WAA off is identical to being not logged into your account (data logged, but not tied to your account).	The email from Mr. Ruemmler referenced by Mr. Schneider shows that Mr. Monsees responded by stating that he has “discussed rewrites of all the UDC help center articles (including WAA/sWAA) to create a more consistent structure to explain the kind of ‘if it’s on’ vs. ‘if it’s off’ points” brought up by Mr. Ruemmler. <sup>174</sup> The testimony and email both support the fact that Google is customer-centric and strives to improve its products for users.
¶ 325, FN 372 (GOOG-RDGZ-00130381)	Mr. Ruemmler reiterated his concerns about the WAA Help Page later that year in another email to colleagues: “Isn’t WAA off supposed to NOT log at all? At least that is what is implied from the WAA page [hyperlink]. So, if WAA is off, how are we [Google] able to log at all?”	As discussed above, Mr. Schneider cherry picks excerpts from Mr. Ruemmler’s emails and does not pair them with Mr. Ruemmler’s own testimony on the points raised. At deposition, Mr. Ruemmler explained that he had a “misunderstanding” about WAA. <sup>175</sup> He told Plaintiffs that his work was in the Workspace and Gmail team, where “everything is GAIA tied,” and that he does not “work in WAA.” So, he had assumed that “if it’s not GAIA tied, it’s not there.” Mr. Ruemmler stated that “after gaining more knowledge,” he became aware of Google’s “other mechanisms used to store the data

<sup>173</sup> Ruemmler Deposition, pp. 72:21-73:3 (“So I believe this is my misunderstanding with the way WAA works. So this was back before I had more knowledge about the way WAA works. And I thought at that time if the opposite of on and off, if it was off, well, we just didn’t, you know, send any of this data to Google. But that’s not right. It’s really you don’t associate the data that’s sent to Google with a GAIA ID, which we call keyed by GAIA ID.”), 74:4-24, 75:23-77:11 (“But like I said, I work in Workspace. Everything is GAIA tied. So if it’s not GAIA tied, it’s not there; right? There’s no notion of something other than GAIA tied. That’s just my background. . . So I probably had the impression back then that when WAA is on, it’s associated with a particular user in My Activity and when WAA is off, well, there’s no association anymore because you can’t GAIA tie it anymore to save it, so there’s no data being sent; right? But I don’t believe that’s the way it works. Again, I don’t work in WAA. . . Right now, after gaining more knowledge, I believe there’s other mechanisms used to store the data at Google anonymously. . . What do you mean by “anonymously”? . . Not tied to a GAIA ID.”).

<sup>174</sup> GOOG-RDGZ-00024709 (Email from Chris Ruemmler titled “Word changes for WAA bit,” July 25, 2019, at -709-711).

<sup>175</sup> Ruemmler Deposition, pp. 72:21-73:3.

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		at Google anonymously.” <sup>176</sup>
¶ 327-330, FN 373-375 (Santiago Deposition, pp. 39:12-15, 145:11-15; Harvey Deposition, pp. 83:15-22; Rodriguez Deposition, pp. 94:18-97:8)	<p>Plaintiff Sal Cataldo testified that Google’s disclosures about WAA list “what gets saved,” then state that, “To let Google save this information, Web &amp; App Activity must be on.” Mr. Cataldo continued: “So if I don’t want to let Google save that information, I turn it off.” Mr. Cataldo summarized his understanding as follows: “That’s pretty simple. That’s pretty elementary.”</p> <p>Plaintiff Julian Santiago likewise testified: “If I had web-and-app activity on, I would be giving Google permission to collect my private—my information. I have web-and-app activity off. Therefore, I did not give them permission.” He continued: “They make a very clear in the web-and-app activity page that web-and-app activity must be on for all those things that they list out, those bullet points to track. So if it’s off, they’re not tracking.”</p> <p>Plaintiff Susan Lynn Harvey likewise testified: “When [WAA] is on, you can include...sites and apps that use Google services.... And to let Google save this information, I’m supposed to have turned it on. And I turned it off so that couldn’t be done.”</p> <p>Plaintiff Anibal Rodriguez likewise testified: “[W]hen WAA is on, it does say...you can include additional activities.... Also and it does say here: ‘To let Google save this information, Web &amp; App Activity must be turned on.’ So if I say I don’t want it on, I would assume that everything you’re</p>	<p>Four people’s testimony on their impression of WAA disclosures cannot be generalized across all of Google’s users. Indeed, each plaintiff testified that notwithstanding their impressions of WAA after initiating this case, they have not changed their behavior and continue to use apps on their Android devices.<sup>177</sup> This testimony thus cannot be used to support Mr. Schneier’s claim that Google’s WAA Help Page exemplifies “dark patterns.” Moreover, Mr. Schneier has not conducted a study on user’s perception on Google’s WAA help page.</p>

<sup>176</sup> Ruemmler Deposition, pp. 74:12-24, 75:23-77:11.

<sup>177</sup> Deposition of Sal Cataldo, February 17, 2022 (“Cataldo Deposition”), pp. 187:25-188:13; Deposition of Julian Santiago, March 7, 2022 (“Santiago Deposition”), pp. 154:19-155:11; Deposition of Susan Harvey, October 27, 2022 (“Harvey Deposition”), pp. 250:7-252:4; Deposition of Anibal Rodriguez, October 16, 2022 (“Rodriguez Deposition”), pp. 82:22-84:15.

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	telling me that comes along with it being on would be turned off.”	
¶ 331, FN 376 (GOOG-RDGZ-00188868, at -887)	As Google’s Vice President of Marketing Cassidy Morgan put it in a 2020 interview, “What drives users crazy is when we do stuff that feels clandestine” and “when we do stuff that they don’t have the ability to have an exit door.” Google’s systems do not provide an exit from collection of data from users’ app usage and other online activity, even as they claim to provide such an exit by means of the WAA and sWAA controls.	Mr. Schneier uses the quote out of context. The document cited by Mr. Schneier appears to be a compilation of conversations with Google’s PrivacyNative team and various stakeholders. Ms. Morgan, as Mr. Schneier points out, is Google’s Vice President of Marketing. Ms. Morgan is not commenting on Google’s WAA and sWAA controls when making the statements cited by Mr. Schneier.

123. In sum, Mr. Schneier introduces three definitions related to the “dark pattern” of “sneaking” and, based solely on his personal interpretation of the language in Google’s WAA Help Page concludes that it exemplifies “dark patterns.” In doing so, he ignores the stated purpose of the page and the explicit communication by Google that the WAA controls apply to whether certain data is saved to the user’s Google Account. Mr. Schneier fails to account for the fact that principles of good UI design, not to mention common sense, require exactly this type of concise disclosure—not a lengthy description of everything but the kitchen sink the WAA control does not do, no matter how unrelated to its functionality.

## **2. Disclosures Accompanying the WAA and sWAA Toggles**

124. Mr. Schneier also invokes the “dark pattern” category of “sneaking” to conclude that Google’s disclosures accompanying the WAA and sWAA toggles, including the “Activity Controls” page, exemplify “dark patterns.”<sup>178</sup> Mr. Schneier argues that the Activity Controls subsection of the Privacy Policy fails to “inform users that these ‘activity controls’ will not prevent Google from collecting and saving data about users’

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<sup>178</sup> Schneier Report, ¶ 332.

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web and app activity, and that the controls merely decide whether the data will be explicitly associated with the user’s Google Account.”<sup>179</sup>

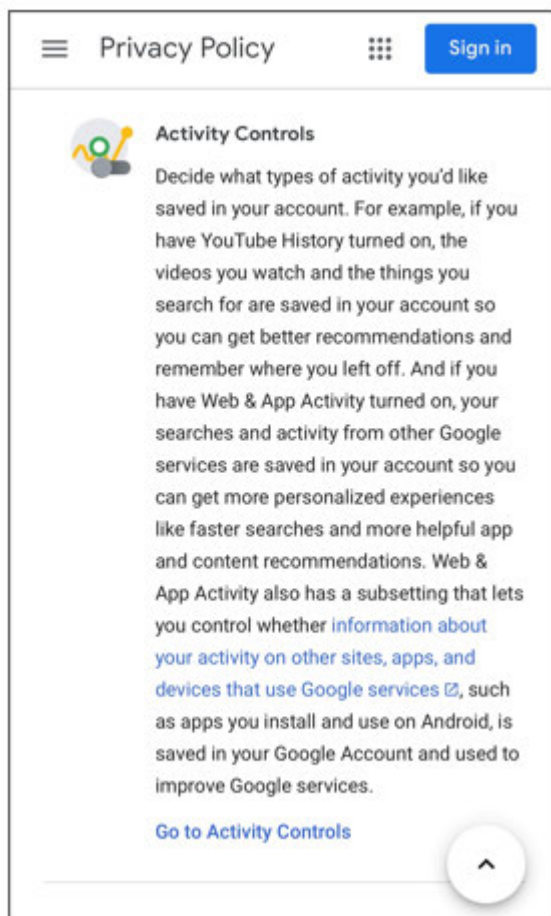
125. Similar to the claims Mr. Schneier made about Google’s WAA Help Page, Mr. Schneier’s claim about the disclosures around the WAA and sWAA toggles also rest on his own interpretation of the language in these disclosures, rather than any common user perception of the meaning of this language. Despite acknowledging that the Activity Controls are nested within the “Privacy Policy” page and state that users can “Decide what types of activity you’d like saved *in your account*”<sup>180</sup> (emphasis added), Mr. Schneier complains that they do not disclose that data is saved anywhere else. The disclosure also states that “if you have Web & App Activity turned on, your searches and activity from other Google services are saved in *your account* so you can get more personalized experiences like faster searches and more helpful app and content recommendations...”<sup>181</sup> (emphasis added) Accordingly, when a user reads the Activity Controls subsection of the Privacy Policy, they have been exposed to numerous disclosures that state explicitly that the setting applies to saving activity in their Google Account. The Activity Controls subsection does not communicate anything regarding Google’s business-facing analytics services or whether they could continue functioning despite WAA being off. Below is a screenshot of the Activity Controls subsection within the Privacy Policy:

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<sup>179</sup> Schneier Report, ¶ 333.

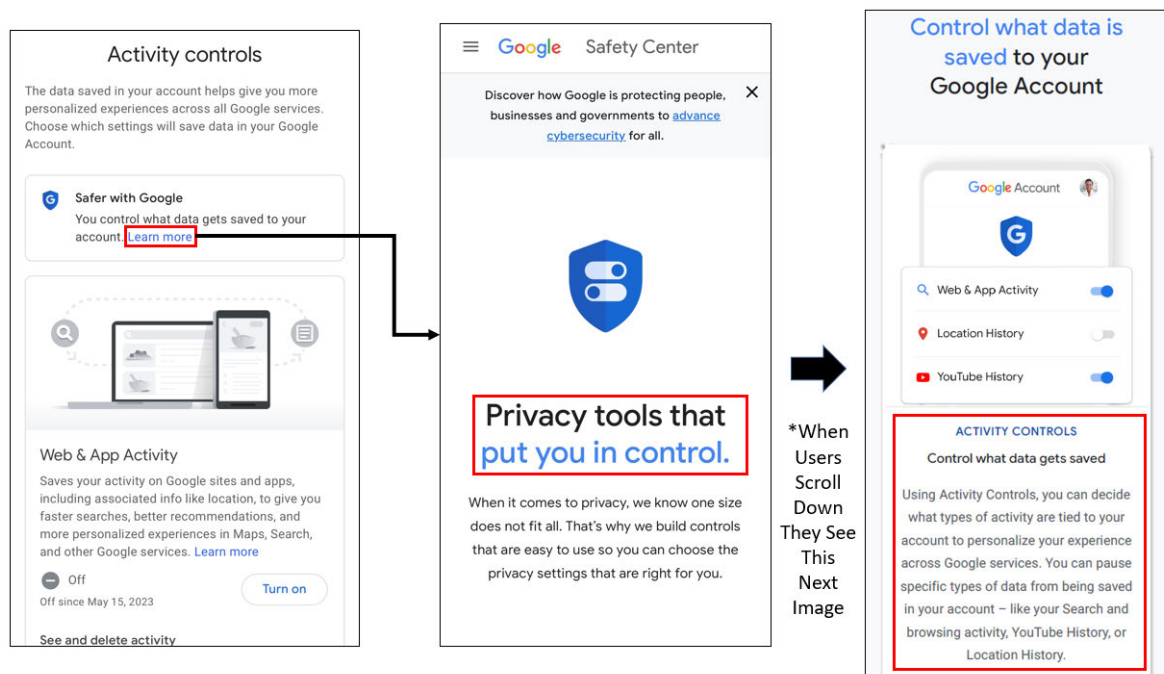
<sup>180</sup> Schneier Report, ¶ 333.

<sup>181</sup> “Privacy Policy,” *Google Privacy & Terms*, December 15, 2022, available at <https://policies.google.com/privacy>.

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126. Again, the Privacy Policy explicitly communicates to users what the Activity Controls actually do, without overwhelming users with information about what the activity controls do not do. This approach is consistent with the principles of good UI design that support the appropriateness of limiting disclosures to only what is most relevant to a user, in this case the types of activity that are saved to a Google Account for the purpose of personalization.
127. Users receive a number of additional disclosures prior to adjusting their Web & App Activity settings on the Activity controls page that also clearly communicate that the settings within the page apply only to controlling data saved in their *Google Account*.<sup>182</sup> Screenshots of the Activity controls page, as well as relevant hyperlinked subsections within the Safety Center Privacy controls page are shown below:

<sup>182</sup> “Activity controls,” *Google Account*, available at <https://myactivity.google.com/activitycontrols>.

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128. The screenshots above show that directly underneath the two introductory sentences of the Activity controls page, an instruction and link appears which states “Safer with Google You control what data gets saved to *your account*. Learn more.” (emphasis added) Additionally, there is a description of WAA data, including details on how Google can use WAA data to improve its products and services to users. Furthermore, should the user want to “Learn More” about what data gets saved to their Google Account, users can click on the provided link. The link leads users to the Safety Center Privacy controls page, which begins with the title “Privacy tools that put you in control” (emphasis in red box added) and describes various settings in detail, all provided to assist the user in protecting their privacy.<sup>183</sup> Additionally, towards the bottom of such a page users are presented with a section titled “ACTIVITY CONTROLS Control what data gets saved to your *Google Account*.”<sup>184</sup> (emphasis in text and red box added) This section also explicitly communicates that Activity controls allow users to “decide what types of

<sup>183</sup> “Privacy controls,” *Google Safety Center*, available at <https://safety.google/intl/en/privacy/privacy-controls/>.

<sup>184</sup> “Privacy controls,” *Google Safety Center*, available at <https://safety.google/intl/en/privacy/privacy-controls/>.



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activity are tied to [their] *account*” (emphasis in text and red box added) and communicates to the user that only “specific” types of data can be paused.

129. Mr. Schneier also cites an email from Chris Ruemmler, a Google employee, to support his conclusions. However, Mr. Schneier mischaracterizes Chris Ruemmler’s email, as my analysis below shows that the email is taken out of context and does not support the claims asserted by Mr. Schneier.

**Table 5: Responses to Mr. Schneier’s Claims that Google’s Disclosures Accompanying the WAA and sWAA Toggles Exemplify “Dark Patterns”**

Schneier Report Source	Schneier’s Claims	Response to Mr. Schneier’s Claims
¶ 334, FN 378 (GOOG-RDGZ-00130322)	In August 2019, Chris Ruemmler commented regarding Google’s “Activity Controls” page: “I don’t see how this text can’t need modification. An “on/off” toggle means the off state is the opposite of the on state. If the on state is we log your activity, the off state is we don’t log your activity. But, the proposal is to temporarily log activity, so something needs to change here.”	As discussed in Table 4 above, Mr. Schneier repeatedly cherry picks Mr. Ruemmler’s emails and disregards Mr. Ruemmler’s own testimony about how the WAA toggle worked. At deposition, Mr. Ruemmler explained that he had a “misunderstanding” about WAA. <sup>185</sup> He told Plaintiffs that his work was in the Workspace and Gmail team, where “everything is GAIA tied,” and that he does not “work in WAA.” So, he had assumed that “if it’s not GAIA tied, it’s not there.” Mr. Ruemmler stated that “after gaining more knowledge,” he became aware of Google’s “other mechanisms used to store the data at Google anonymously.” <sup>186</sup>

130. Mr. Schneier relies on the three previously defined “dark patterns” of “sneaking” to conclude that Google’s disclosures accompanying the WAA and sWAA toggles, including the “Activity Controls” page, exemplify “dark patterns.” However, he does so without conducting any kind of analysis. Even a brief inspection shows that the definitions of the “dark pattern” category of “sneaking” are contextually inapplicable to

<sup>185</sup> Ruemmler Deposition, pp. 72:21-73:3

<sup>186</sup> Ruemmler Deposition, pp. 74:12-24, 75:23-77:11.

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such disclosures and the “Activity Controls” page. Instead, Google’s disclosures accompanying the WAA and sWAA toggles, including the “Activity Controls” page, explicitly communicate that the WAA controls apply to data saved to the user’s Google Account. As a result, Mr. Schneier conclusions are unfounded.

### 3. Google Statements about Privacy and User Control

131. As discussed in **Section VIII.A.1**, Mr. Schneier cites the “dark pattern” categories of “aesthetic manipulation,” “misdirection,” and “emotional steering” to support the argument that Google statements about privacy and user control exemplify “dark patterns.”<sup>187</sup> Specifically, Mr. Schneier argues that:

“Google’s behavior around privacy controls in general and WAA/sWAA in particular exemplifies interface interference, misdirection, and emotional steering. Google repeatedly reassures users that they are in control of their privacy, and over the data that Google collects and saves. These substantial-sounding assurances reflect the objective of helping users to feel comfortable and to make privacy choices deemed most favorable by Google.”<sup>188</sup>

132. However, Mr. Schneier fails to indicate how Google’s behavior around privacy controls in general and WAA/sWAA directly satisfies any of the three definitions. For example, as discussed above both the “dark patterns” of interface interference and misdirection involve some form of the manipulation of aesthetics, style, or design of a user interface.<sup>189</sup> Therefore at the very least both “dark patterns” appear to be contextually inapplicable to general statements or so called reassurances made by Google. In addition, Mr. Schneier argues that Google is somehow reassuring users that they are in control of their privacy as a tactic to influence such users to make choices most favorable to Google. In support, Mr. Schneier cites a page from an internal Google document regarding guidance for translating consent-bump text.<sup>190</sup> However, the document is not

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<sup>187</sup> Schneier Report, ¶ 340-342.

<sup>188</sup> Schneier Report, ¶ 343.

<sup>189</sup> Schneier Report, ¶ 340-341.

<sup>190</sup> GOOG-RDGZ-00149527 (Document titled “Draft: Documenting consent bump for translators, December 8, at - 529).

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demonstrative of an intent to influence users to make choices most favorable to Google. Instead, it pertains to a Google objective to accurately translate changes to its Privacy Policy in other languages. Additionally, Mr. Schneier conveniently ignores high-level “key concepts” related to the drafting of text that are listed within the very page he cites, which include “transparency,” “simple words,” and “real choice.”<sup>191</sup> Such concepts demonstrate a clear intent on Google’s part to provide users with choices when adjusting privacy settings, and serve as examples of Google designing UI and privacy disclosures with its users in mind.

133. Mr. Schneier also claims that Google’s Privacy Policy fails to “make the subtle but meaningful distinction that turning off the WAA and/or sWAA settings does not prevent Google, by means of Google services like Firebase, AdMob, and the AdManager, from collecting and saving information relating to your activity on third-party apps you install and use.”<sup>192</sup> In support, Mr. Schneier quotes the Activity Controls subsection of Google’s Privacy Policy which states:

“[I]f you have Web & App Activity turned on, your searches and activity from other Google services are saved in your account so you can get more personalized experiences like faster searches and more helpful app and content recommendations. Web & App Activity also has a subsetting that lets you control whether **information about your activity on other sites, apps, and devices that use Google services**, such as apps you install and use on Android, is saved in your Google Account and used to improve Google services.”<sup>193</sup>

134. Mr. Schneier draws conclusions not by focusing on what the Privacy Policy actually says, but instead by what it does not say. While Mr. Schneier emphasizes text in the above passage regarding activity recorded on third-party apps, he overlooks the language in the quoted text which clarifies that the WAA setting allows users to “control whether information about [their] activity on other sites, apps, and devices that use Google

<sup>191</sup> GOOG-RDGZ-00149527 (Draft: Documenting consent bump for translators, December 8, at -528-529).

<sup>192</sup> Schneier Report, ¶ 345.

<sup>193</sup> “Privacy Policy,” *Google Privacy & Terms*, December 15, 2022, available at <https://policies.google.com/privacy>.

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services, such as apps you install and use on Android, *is saved in [their] Google Account.*”<sup>194</sup> (emphasis added) This means that when WAA is turned off, the same data is *not* saved in the user’s Google Account. It does not imply that third-party apps cannot nonetheless use Google Analytics and collect certain information. Accordingly, the Activity Controls subsection of the Privacy Policy explicitly communicates to users that activity controls enable users to control the information saved to their Google Account, without overwhelming users with information about what the activity controls do not do. Additionally, as stated in **Section VIII.B.2**, Mr. Schneier fails to consider the fact that users are required to navigate from the Privacy Policy to the Activity controls page to change Web & App Activity settings.<sup>195</sup> Once at the Activity controls page, users are exposed to additional information which clearly communicates that the settings within the page only apply to controlling data saved in their *Google Account*.<sup>196</sup> (emphasis added)

135. The “Sites and apps that use Google services” subsection contains a link which provides users with the ability to learn more about “...How Google uses information from sites or apps that use our services.”<sup>197</sup> Text within the linked Google Advertising Privacy & Terms page makes it clear to users that third-party sites and apps collect information and share it with Google. For example, the page specifically states that “Many websites and apps use Google services to improve their content and keep it free. When they integrate our services, these sites and apps share information with Google.”<sup>198</sup>
136. Third-party app user agreements serve as another source of information that communicates to users that Google is collecting and saving information related to their activity on such apps. In fact, Google requires third parties that utilize the Firebase SDK to include such disclosures in their privacy policies.<sup>199</sup> A review of third-party app user

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<sup>194</sup> “Privacy Policy,” *Google Privacy & Terms*, December 15, 2022, available at <https://policies.google.com/privacy>.

<sup>195</sup> “Privacy Policy,” *Google Privacy & Terms*, December 15, 2022, available at <https://policies.google.com/privacy>.

<sup>196</sup> “Activity Controls,” *Google Account*, available at <https://myactivity.google.com/activitycontrols>.

<sup>197</sup> “Privacy Policy,” *Google Privacy & Terms*, December 15, 2022, available at <https://policies.google.com/privacy>.

<sup>198</sup> “Technologies,” *Google Privacy & Terms*, available at <https://policies.google.com/technologies/partner-sites>.

<sup>199</sup> See Google Analytics Terms of Service, *Google Marketing Platform*, available at <https://marketingplatform.google.com/about/analytics/terms/us/>.

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agreements shows that users are notified that Google may collect data related to their activity. For example, the Apple App Store Preview of the NY Times app contains an App Privacy section which provides users with a link to their privacy policy.<sup>200</sup> Within the linked New York Times Company Privacy Policy, users are notified that

“Google Analytics is one of the analytics providers we use. You can find out how Google Analytics uses data and how to opt out of Google Analytics.”<sup>201</sup>

(emphasis added; links to Google privacy pages underlined)

137. When users click on the “how Google Analytics uses data” link, the same Google Advertising Privacy & Terms page discussed above appears, again making it clear to users that third-party sites share information about their activity with Google.<sup>202</sup> The same applies to users of the Lyft app. Lyft’s Privacy Policy states the following:

“Cookies, Analytics, and Third-Party Technologies. We collect information through the use of “cookies”, tracking pixels, data analytics tools like Google Analytics, SDKs, and other third-party technologies to understand how you navigate through the Lyft Platform and interact with Lyft advertisements, to make your Lyft experience safer, to learn what content is popular, to improve your site experience, to serve you better ads on other sites, and to save your preferences...”

(emphasis added; links to Google privacy pages underlined)<sup>203</sup>

138. Not only does Lyft’s Privacy Policy notify users that they collect user activity through Google Analytics, but it also provides a “Google Analytics” link that leads users to the same Google Advertising Privacy & Terms page.<sup>204</sup>

139. Mr. Schneier also refers to Google public statements, statements by Google employees, and deposition testimony by the plaintiffs when forming conclusions. However, the table

<sup>200</sup> “The New York Times app,” *Apple App Store Preview*, available at <https://apps.apple.com/us/app/the-new-york-times/id284862083>.

<sup>201</sup> “The New York Times Company Privacy Policy,” *The New York Times*, March 16, 2023, available at <https://help.nytimes.com/hc/en-us/articles/10940941449492-The-New-York-Times-Company-Privacy-Policy->.

<sup>202</sup> “Technologies,” *Google Privacy & Terms*, available at <https://policies.google.com/technologies/partner-sites>.

<sup>203</sup> “Lyft Privacy Policy,” *Lyft*, December 12, 2022, available at <https://www.lyft.com/privacy>.

<sup>204</sup> “Technologies,” *Google Privacy & Terms*, available at <https://policies.google.com/technologies/partner-sites>.

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below demonstrates that the sources cited by Mr. Schneier cannot be relied upon to support the claims that he asserts.

**Table 6: Responses to Mr. Schneier’s Claims that Google’s Statements about Privacy and User Control Exemplify “Dark Patterns”**

Schneier Report Source	Schneier’s Claims	Response to Mr. Schneier’s Claims
¶ 349-350, FN 392-393 (“LIVE: Google CEO Sundar Pichai testifies on data collection (C-SPAN),” <i>YouTube</i> , December 11, 2018, available at <a href="https://www.youtube.com/watch?v=WfbTbPEEJxI">https://www.youtube.com/watch?v=WfbTbPEEJxI</a> ; Pichai, Sundar, “Google’s Sundar Pichai: Privacy Should Not Be a Luxury Good,” <i>The New York Times</i> , May 7, 2019, available at <a href="https://www.nytimes.com/2019/05/07/opinion/google-sundar-pichai-privacy.html">https://www.nytimes.com/2019/05/07/opinion/google-sundar-pichai-privacy.html</a> )	Congressional testimony by Google CEO Sundar Pichai, who responded to the chairman’s opening question about the ubiquity of Android data collection by asserting that its extent is “a choice users make.” In May 2019, Mr. Pichai broadcast this message again in a New York Times op-ed extolling the company’s commitment to privacy and user control: “To make privacy real, we give you clear, meaningful choices around your data.”	Mr. Schneier fails to acknowledge that Mr. Pichai’s statement is accurate. Users have access to privacy control tools. Mr. Schneier makes it appear as if privacy is an all or nothing approach. He claims that “there is not any ‘control’ that will allow users to entirely prevent Google from collecting app-activity data that Google collects.” <sup>205</sup> Yet, Google provides users with access to various controls where they can adjust their settings to control how and what data Google collects about them.
¶ 354, FN 403 (GOOG-RDGZ-00149701, at -702)	Google technical writer David Warren acknowledged that Google is “intentionally vague” about the distinction between data saved in a user’s Google Account and data “collected outside of their Google Account.”	Mr. Schneier takes this quote from an email where Google employees are comparing versions of a “consent bump” disclosure in two languages. We have previously established this disclosure is contextually irrelevant here, as this disclosure was relevant to users turning on WAA/sWAA controls and the users in this case turned WAA and sWAA off. Nevertheless, I clarify this excerpt’s context. In this email, an engineer editing the Dutch version takes an excerpt from Mr. Warren’s comments in an unknown document about the English version of the “consent bump.” Within that excerpt is Mr. Warren’s statement that the disclosure is “intentionally vague” because “the technical details [behind the consent bump] are complex” which “could sound alarming to users (for something that we feel shouldn’t sound

<sup>205</sup> Schneier Report, ¶ 353.

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		alarming).” Though Mr. Schneier attempts to use this excerpt to imply that Google uses “dark patterns,” it is actually the opposite. It is an example of just one of the many ways Google provides users with information regarding its data collection practices without overwhelming them with technical information that may be more confusing than helpful.” <sup>206</sup>
¶ 355, FN 404 (GOOG-RDGZ-00207105, at -106)	Rajni Posner, Google’s Brand Strategist for User Trust Marketing, suggested rewording the phrase “what data Google saves and uses across Google services” to the passive voice, as “what data is saved and used across Google services.” David Warren’s reply illustrates the nuances of language designed to engender a false sense of agency on the part of the end user with respect to the matter of privacy: “I like Rajni’s suggestion. It’s true that we try to use active voice as a rule, but I like her construction in this case because of the slight ambiguity it introduces. I’ve even written some strings in the past that make the user the agent when saving data, like “Choose what data you want to save...” If we’re pushing the control story, then, in a sense, it’s the user choosing what data to save, so let’s remove Google as the agent in this case.”	Mr. Warren was making the point that the user controls what data Google saves from the users. Mr. Schneier’s use of the term “false sense of agency” is problematic, as it assumes that users do not actually have control over their own privacy. On the contrary, as shown above in <b>Section VI.B</b> , Google provides users with control over the company’s collection of their data.
¶ 356-358 (Santiago Deposition, p. 107:1-9; Harvey Deposition, October 27, 2022, p. 94:8-18)	The deposition testimony from the named Plaintiffs in this case illustrates the effect of Google’s use of dark patterns, including “Aesthetic Manipulation,” in its statements about privacy and user control.  For example, Plaintiff Julian Santiago testified: “[R]ight on the first page of the privacy policy, Google is letting me know what	Mr. Santiago and Ms Harvey’s testimony on their impression of WAA disclosures cannot be generalized across all of Google’s users and used to support Mr. Schneier’s claim that Google’s WAA Help Page exemplifies “dark patterns.” Moreover, Mr. Schneier has not conducted a study on user’s perception on Google’s WAA settings and privacy disclosures.

<sup>206</sup> GOOG-RDGZ-00149701 (Email from Jen Mueller titled “Effect of flipping SWAA,” June 10, 2016 at -702).



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	<p>they are putting me in control of my information. And if I opt out of sharing that information of Google collecting that information, then they shouldn’t be collecting and tracking that information.”</p> <p>Plaintiff Susan Lynn Harvey likewise testified: “I was offered an option to be able to turn off data collection to where it wouldn’t be saved or used or stored or anything, and that wasn’t done.”</p>	
<p>¶ 359, FN 405 (Miraglia Deposition, pp. 96:15-97:6)</p>	<p>Notwithstanding Google’s promises, Google employees have confirmed that there is no way for users to prevent Google from collecting and saving information relating to their activity on non-Google apps that use Google services such as Firebase. Consider this exchange from the deposition of Eric Miraglia:</p> <p>Counsel: So I’m just trying to ask at a more...general level, not focusing only on Firebase or...Analytics, but whether you’re aware of any Google control that would just full stop Google from collecting any data about a user’s app activity.</p> <p>Witness: I’m not aware of any setting that—that’s shaped exactly the way you described it.</p>	<p>Mr. Schneier is mischaracterizing Mr. Miraglia’s testimony. First, Mr. Schneier chooses to ignore that Mr. Miraglia testified earlier that he “is not familiar []enough with how Analytics works or the Firebase product to give [Plaintiff’s Counsel] good answers about how settings control that data.”<sup>207</sup> Moreover, Mr. Schneier also chooses to ignore that Google collects user data on apps that use Google Firebase “on behalf of the developer” such that developers can “understand how their app is performing.”<sup>208</sup></p>
<p>¶ 360, FN 406 (Fair Deposition, p. 79:6-10; Miraglia Deposition, pp. 134:14-137:19)</p>	<p>There is also no way for users to actually delete so-called “pseudonymous” data that Google has collected. Greg Fair, formerly Google’s Product Manager for Privacy and Data Protection, has testified that “I’m not aware of a specific control that the user can delete something from Google. The controls that we have in the My Activity space talk about deleting a piece of data from your account.”</p>	<p>Mr. Schneier is mischaracterizing the testimony of Mr. Fair. First, Mr. Schneier fails to acknowledge that Mr. Fair’s full response included confirmation that when users switch off the WAA setting, “data is not stored into the [user’s] account.” Mr. Fair also confirms that when users “go into My Activity to delete a search, individual search or multiple searches, that is deleted from that repository that’s</p>

<sup>207</sup> Miraglia Deposition, p. 95:4-12.

<sup>208</sup> Miraglia Deposition, pp. 93:24-94:14.

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		<p>associated with the account.”<sup>209</sup> Moreover, Mr. Schneier also chooses to ignore that the context for Mr. Fair’s response that he was “not aware of a specific control that the user can delete something from Google” was due to a miscommunication. Mr. Fair was under the impression that Plaintiff Counsel was asking him about deleting “Google code” or “Google’s intellectual property and the algorithm that Google has developed over time.”<sup>210</sup></p>
<p>¶ 362, FN 407 (“Google to turn on activity tracking for many users who turned it off,” <i>Hacker News</i>, February 2, 2022 available at <a href="https://news.ycombinator.com/item?id=30171800">https://news.ycombinator.com/item?id=30171800</a>)</p>	<p>Google’s behavior toward enterprise customers also calls to mind dark patterns. In March 2022, Google removed the WAA control from the administrator console for Google Workspace, a suite of enterprise services including Gmail, Calendar, Docs, Contacts, Drive, Google Chat, and Keep; added a new “Google Workspace Search History” setting to individual users’ My Activity page; and switched that setting on by default, even if their organization’s Workspace administrator had previously disabled the WAA setting.</p>	<p>Mr. Schneier fails to explain how Google Workspace is relevant to this case. Mr. Schneier ignores that the purpose of this change (as discussed by the user riverguardian, who claims to be the Product Manager for this new feature in the same thread) is the following: “Web and App Activity is designed to store search activity across all Google services, and we’re splitting Workspace data out since it’s governed by strict data handling guarantees, with the hope that more people will feel comfortable getting the benefits of better search in Workspace without having to opt-into search history being tracked for all Google services.”<sup>211</sup> Moreover, the Google webpage describing this change also contains a FAQ for users looking to “delete or opt out of Google’s Workspace history.”<sup>212</sup></p>

<sup>209</sup> Deposition of Greg Fair, October 3, 2022 (“Fair Deposition”), p. 79:6-18.

<sup>210</sup> Fair Deposition, pp. 80:6-82:6.

<sup>211</sup> “Google to turn on activity tracking for many users who turned it off,” *Hacker News*, February 2, 2022, available at <https://news.ycombinator.com/item?id=30171800>.

<sup>212</sup> “Save and Manage Search Activity,” *Google Workspace Admin Help*, available at <https://support.google.com/a/answer/11194328#zippy=%2Ccan-users-delete-or-opt-out-of-google-workspace-search-history>.

*Highly Confidential – Attorneys’ Eyes Only***4. Google’s WAA Controls for Location Privacy**

140. In his report, Mr. Schneier also claims that Google’s “use of two different controls for location privacy” exemplifies “dark patterns.”<sup>213</sup> It is my understanding that Mr. Schneier is referring to the WAA and Location History settings as the two different controls that Google provides to users for location privacy. The claims at issue here do not involve location privacy controls and Mr. Schneier has not indicated why such controls could be relevant to the current matter. Setting aside the issue of relevance, Mr. Schneier attempts to support his claim by providing two definitions corresponding to the “dark pattern” categories of “hidden information” and “conflicting information,” as well as citing several legal settlements and internal Google communication as evidence in support.<sup>214</sup> However, without applying the definitions to the case at hand, Mr. Schneier incorrectly draws the conclusion that Google’s controls for location privacy exemplify “dark patterns.”

141. Google’s use of two different controls for location privacy is not an example of “conflicting information,” as defined by the EU and cited by Mr. Schneier. Specifically, the EU defines the “dark pattern” category of “conflicting information” as:

“Giving pieces of information to users that conflict with each other in some way. Users are likely to be left unsure of what they should do and about the consequences of their actions, therefore likely not to take any and to just keep the default settings.”<sup>215</sup>

142. Based on my understanding of the Schneier Report, Mr. Schneier has not stated in any form that the two different controls used for location privacy conflict with each other in any way. Instead Mr. Schneier is simply arguing that the existence of two different location privacy controls itself exemplifies a “dark pattern.” Accordingly, the above definition is contextually not applicable here.

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<sup>213</sup> Schneier Report, ¶ 366.

<sup>214</sup> Schneier Report, ¶¶ 364-369.

<sup>215</sup> Jelinek, Andrea, et al., “Dark patterns in social media platform interfaces: How to recognise and avoid them,” *European Data Protection Board*, March 14, 2022, available at [https://edpb.europa.eu/system/files/2022-03/edpb\\_03-2022\\_guidelines\\_on\\_dark\\_patterns\\_in\\_social\\_media\\_platform\\_interfaces\\_en.pdf](https://edpb.europa.eu/system/files/2022-03/edpb_03-2022_guidelines_on_dark_patterns_in_social_media_platform_interfaces_en.pdf), at p. 64.

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143. Mr. Schneier’s reliance on the definition of “hiding information” by Dr. Gray is also misplaced. The use of two different controls for a privacy setting is not an example of “hiding information.” Specifically, Dr. Gray defines the “dark pattern” category of “hiding information” as:

“options or actions relevant to the user but not made immediately or readily accessible. Hidden information may manifest as options or content hidden in fine print, discolored text, or a product’s terms and conditions statement. The primary motivator behind hidden information is the disguising of relevant information as irrelevant.”<sup>216</sup>

144. Mr. Schneier has not provided any rationale to explain how Google’s use of two different controls for location privacy meets the above definition of “hiding information.” Even a brief inspection shows that the use of two different controls for location privacy is not an example of “options or content hidden in fine print, discolored text, or a product’s terms and conditions statement.”<sup>217</sup> Additionally, the two different controls for location privacy are readily accessible from within the same page. For example, both controls for location privacy, WAA and Location History settings, are clearly provided and able to be turned off in the Activity controls page, which Mr. Schneier references as a page that users visit.<sup>218</sup>

145. Google’s use of two different controls for location privacy is not evidence of a “dark pattern” but instead logical because WAA and Location History are different account-level settings, and therefore it is appropriate that they would have separate consent flows. More specifically, WAA is a setting that stores a user’s Google activity data to My Activity in their Google Account.<sup>219</sup> The user location information that is saved through

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<sup>216</sup> Gray, Colin M., Yubo Kou, Bryan Battles, Joseph Hoggatt, and Austin L. Toombs, “The Dark (Patterns) Side of UX Design,” Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems, No. 534 (April 2018): 1-14, at p. 7.

<sup>217</sup> Gray, Colin M., Yubo Kou, Bryan Battles, Joseph Hoggatt, and Austin L. Toombs, “The Dark (Patterns) Side of UX Design,” Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems, No. 534 (April 2018): 1-14, at p. 7.

<sup>218</sup> Schneier Report, ¶ 333.

<sup>219</sup> “My Google Activity,” *Google My Activity*, available at <https://myactivity.google.com>.

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Web & App Activity is stored in a user’s Google Account when the user has Web & App Activity enabled and is engaging with a Google product. For example, when a user searches for “gas station” using Google Search or Google Maps, Google collects the search term as well as IP address and location information, so that the search results returned will show nearby options.<sup>220</sup> Clearly, it is reasonable for users to understand that WAA relies on location information.

146. Location History is distinct from WAA. Location History is a Google Account-level setting that saves a private map of where the user goes with his or her signed-in devices, even when the user is not using a Google service.<sup>221</sup> Location History is turned off by default and users must opt in to enable it.<sup>222</sup> Opting in to Location History provides users with benefits across Google products and services including personalized maps, help finding your phone, real-time traffic updates, and more useful ads.<sup>223</sup> Location History also allows Google to build a user’s Google Maps Timeline, which users can review and delete at any time at <https://maps.google.com/timeline>.<sup>224</sup> This description of Location History makes clear that it is distinct from WAA.
147. Mr. Schneier also relies on international court decisions, unrelated settlements, and Google employee statements to support his conclusions. However, my analysis in the table below shows that the sources should not be relied upon to support the claims that Mr. Schneier asserts.

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<sup>220</sup> “Find & control your Web & App Activity,” *Google Account Help*, available at <https://support.google.com/accounts/answer/54068>.

<sup>221</sup> “Manage your Location History,” *Google Account Help*, available at <https://support.google.com/accounts/answer/3118687>.

<sup>222</sup> “Manage your Location History,” *Google Account Help*, available at <https://support.google.com/accounts/answer/3118687>.

<sup>223</sup> “Manage your Location History,” *Google Account Help*, available at <https://support.google.com/accounts/answer/3118687>.

<sup>224</sup> “Manage your Location History,” *Google Account Help*, available at <https://support.google.com/accounts/answer/3118687>.

*Highly Confidential – Attorneys’ Eyes Only***Table 7: Responses to Mr. Schneider’s Claims that Google’s WAA Controls for Location Privacy Exemplify “Dark Patterns”**

Schneider Report Source	Schneider’s Claims	Response to Mr. Schneider’s Claims
¶ 367, FN 413 (“Google LLC to pay \$60 million for misleading representations,” <i>Australian Competition and Consumer Commission</i> , August 12, 2022, available at <a href="https://www.accc.gov.au/media-release/google-llc-to-pay-60-million-for-misleading-representations">https://www.accc.gov.au/media-release/google-llc-to-pay-60-million-for-misleading-representations</a> )	In 2022, an Australian federal court fined Google \$42.6 million (US dollars) for making misleading representations about the collection and use of location data on Android phones. The Australian investigation targeted Google’s practice of implying to users that the “Location History” setting was the sole control by which users could authorize Google to collect their location data. In fact, WAA also controlled that collection. Both had to be set to “off,” and WAA was turned on by default.	Mr. Schneider has not shown why the findings of the Australian federal court are relevant to this specific case. The Australia federal court decision was specific to the “the collection and use of their personal location data on Android phones between January 2017 and December 2018” and is irrelevant to the claims of this case.
¶ 368, FN 414-415 (Cordoba Perez, Angela, Jose R. Gonzalez, “Arizona announces \$85M settlement with Google for allegedly tracking users’ location deceptively,” <i>azcentral.com</i> , October 4, 2022, available at <a href="https://tinyurl.com/25fjepva">https://tinyurl.com/25fjepva</a> ; Foley, Tony, “Cybersecurity Policy Report, Google Settles With State AGs Over Location-Tracking,” <i>Vital Law</i> , November 14, 2022, available at <a href="https://shorturl.at/gtAQS">https://shorturl.at/gtAQS</a> )	In October 2022, the Arizona Attorney General announced an \$85 million settlement with Google for the same issue, calling the practice of requiring two coordinated settings for disabling location tracking “deceptive and unfair.” 414 And in November, Google settled with the attorneys general of forty other states for \$391.5 million for the same reason.	Mr. Schneider has not shown why Google’s settlement with the Arizona Attorney General is relevant to this case. The Arizona matter was specific to Google’s alleged location-tracking practices, and is irrelevant to the claims of this case.
¶ 369, FN 416 (GOOG-RDGZ-00041092, at -093)	Google employees had recognized the problems with this deceptive practice. Danny Sullivan, Google’s Public Liaison for Search, observed, “This is so convoluted how we do it that I have to point to our help page rather than the actual control—and then hope people can scroll to the right place on the help page to discover that while we have one control for Location History in Activity Controls, they have to jump to Google Maps Timeline and figure out they should click on the small trash can icon. I sure didn’t	Mr. Schneider appears to take this quote out of context. The quote is from a comment Mr. Sullivan made in a document of unknown context, and the document’s relevance to the case is unclear. Moreover, the content of Mr. Sullivan’s comment appears to be more related to Google Maps Timeline and Location History in Activity Controls, and not about WAA and sWAA data collection.

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	get that, at first. [...] Overall, it’s still mind-numbing to try and figure this all out even when you work at Google.”	
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**5. Google’s WAA/sWAA “Consent Bump” Prompt**

148. Mr. Schneier claims that Google repeatedly asks users to enable the WAA and sWAA settings, if not already turned on, and ultimately classifies such behavior under the “dark pattern” of “nagging.”<sup>225</sup> However, he fails to indicate why “consent bumps” are relevant to the current matter, as the claims at issue involve user expectations regarding data collection after turning WAA and sWAA controls *off*, and not with regard to users turning on WAA and sWAA controls. Setting aside Mr. Schneier’s misplaced focus on “consent bumps,” a brief inspection shows that Mr. Schneier’s conclusion that Google’s WAA/sWAA “consent bump” prompt exemplifies “dark patterns” is unsupported.
149. As mentioned in **Section VIII.A.1**, Mr. Schneier relies on three definitions to establish the “dark pattern” category of “nagging” to support his conclusion regarding Google’s WAA/sWAA “consent bump.” However, as stated above the definitions are inconsistent as they vary in the level of user contact needed to establish that “nagging” has occurred. In addition, a review of Dr. Gray’s definition of “nagging” illustrates the subjectiveness problem in the “dark pattern” literature. Specifically, Dr. Gray defines nagging as “a *minor* redirection of expected functionality that may persist over *one* or more interactions.”<sup>226</sup> (emphasis added) Accordingly, simply *one minor* interruption is sufficient to satisfy Dr. Gray’s definition of “nagging.” Such a result is absurd on its face as it implies that any and all “pop-ups,” “audio notices,” and “other actions” that attempt

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<sup>225</sup> Schneier Report, ¶¶ 371, 373-374.

<sup>226</sup> Gray, Colin M., Yubo Kou, Bryan Battles, Joseph Hoggatt, and Austin L. Toombs, “The Dark (Patterns) Side of UX Design,” Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems, No. 534 (April 2018): 1-14, at p. 5.



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to capture a user’s focus could be construed as a “dark pattern,” even those meant to improve user experience.<sup>227</sup>

150. With regard to the FTC and EU definition of “nagging,” Mr. Schneier does not provide sufficient support to satisfy either of the two definitions relied upon. Specifically, Mr. Schneier cites statements made by Eric Miraglia and a filing in the *Calhoun v. Google, LLC* case as support for the existence of Google’s WAA and sWAA “consent bump” prompt.<sup>228</sup> Both sources state that users are prompted with the “consent bump” when they sign into their Google Account.<sup>229</sup> However, Mr. Schneier does not provide any information with regard to how often Google users sign into their account or how often they would be prompted, and therefore fails to prove that the “consent bump” occurs “repeatedly and disruptively” or in a “continuous” manner that leaves users “wearied” as the FTC and EU require respectively.<sup>230</sup>
151. Mr. Schneier also discusses a 2016 Google document as an example of “nagging” that highlights the user “consent bump” flow for WAA and sWAA settings, and claims that “both visually and verbally, the [] consent flow subtly discouraged users from disabling their account’s WAA and sWAA settings.”<sup>231</sup> Mr. Schneier’s claim is baffling and completely misplaced as the “consent bump” is only shown to users who *already* have their WAA and sWAA settings turned off.
152. Contrary to Mr. Schneier’s claim, the “consent bump” flow that Mr. Schneier refers to in his report is designed according to the principles of progressive disclosure.<sup>232</sup> Users are

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<sup>227</sup> Gray, Colin M., Yubo Kou, Bryan Battles, Joseph Hoggatt, and Austin L. Toombs, “The Dark (Patterns) Side of UX Design,” Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems, No. 534 (April 2018): 1-14, at p. 5.

<sup>228</sup> Schneier Report, ¶¶ 375-378.

<sup>229</sup> Schneier Report, ¶¶ 375-378.

<sup>230</sup> Staff Report, “Bringing Dark Patterns to Light,” *US Federal Trade Commission*, September 2022, available at [https://www.ftc.gov/system/files/ftc\\_gov/pdf/P214800%20Dark%20Patterns%20Report%209.14.2022%20-%20FINAL.pdf](https://www.ftc.gov/system/files/ftc_gov/pdf/P214800%20Dark%20Patterns%20Report%209.14.2022%20-%20FINAL.pdf), at p. 24; Jelinek, Andrea, et al., “Dark patterns in social media platform interfaces: How to recognise and avoid them,” *European Data Protection Board*, March 14, 2022, available at [https://edpb.europa.eu/system/files/2022-03/edpb\\_03-2022\\_guidelines\\_on\\_dark\\_patterns\\_in\\_social\\_media\\_platform\\_interfaces\\_en.pdf](https://edpb.europa.eu/system/files/2022-03/edpb_03-2022_guidelines_on_dark_patterns_in_social_media_platform_interfaces_en.pdf), at p. 2.

<sup>231</sup> Schneier Report, ¶¶ 374, 379.

<sup>232</sup> GOOG-RDGZ-00149771 (Presentation titled “Consent flow - page 1,” at -771-775).

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able to accept turning on the WAA and sWAA setting on the first screen or choose “more options.” If “more options” is chosen, on the very next screen users are presented with an option to decline, decline and review key privacy settings, or turn on WAA and sWAA features, in that order. Stated another way, if the first screen provides a user with all of the information they believe they need to make a decision, they can accept to turn on WAA and sWAA features. If not, then in the very next screen they are provided with the ability to accept, deny, or learn more about the features. Google’s use of two different screens for the “consent bump” is not evidence of a “dark pattern” but instead a logical and user-friendly way to progressively present options without information overload.

153. Mr. Schneier also cites Google employee statements to assert specific claims. However, my analysis in the table below shows Mr. Schneier mischaracterizes the substance of the statements and therefore such sources should not be relied upon to support the respective conclusions made by Mr. Schneier.

**Table 8: Responses to Mr. Schneier’s Claims that Google’s WAA/sWAA “Consent Bump” Prompt Exemplifies “Dark Patterns”**

Schneier Report Source	Schneier’s Claims	Response to Mr. Schneier’s Claims
¶ 374-376, FN 419-421 (Miraglia Deposition, pp. 55:10-12, 57:23-58:1, 60:2-5, 60:8-16, 72:10-13; GOOG-RDGZ-00145258, at - 258)	<p>As explained by Eric Miraglia, “users would be presented with a screen where they would see what the settings were currently set to, and they’d have a chance to update their preferences.... [A]s soon as you signed in to your Google account, you would see that screen.... [W]e also used push notifications as another mechanism.”</p> <p>In an internal email discussion, Eric Miraglia noted that “sWAA was off by default from 2014, when it was introduced, until mid-2016, when Narnia 2.0 came along.” According to Mr. Miraglia, Narnia 2.0 “introduced a consent flow that specifically reminded users about</p>	<p>Mr. Schneier does not mention that the purpose of Narnia 2.0 is to “give users simple powerful controls that allow them to be in the state that they want to be in to get the product experience that they want.”<sup>233</sup></p> <p>Google was not trying to deceive or manipulate its users with the “Consent Bumps,” but rather designed its UI to provide users with information regarding the benefits of WAA and sWAA.</p>

<sup>233</sup> Miraglia Deposition, pp. 57:23-58:16.

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	<p>how these settings and others worked and allowed users who didn’t have them on to turn them on.... The general direction of Narnia 2.0...was to refine the way our settings worked to give users more control and simpler control over the way data was collected and used.”</p>	
<p>¶ 379-380, FN 426 (GOOG-RDGZ-00149527, at -529-530)</p>	<p>A 2016 document by Google technical writer David Warren notes that the first objective of the new WAA/sWAA consent bump was not to clearly inform users of the full scope of data collection, but to “Help users feel comfortable choosing ACCEPT.” Mr. Warren then listed “Preferred user actions [...] from most to least favorable”...</p> <p>Warren continued: “A user should be able to read the consent bump in layers from little to more detail. We’d like the user to feel comfortable clicking ACCEPT as quickly as possible. In other words, if the user stops at layer 1 [i.e., the page title], and clicks ACCEPT, that’s fine.... [M]any users will blindly choose ACCEPT, having already bought into a relationship with Google based on trust.” The wording of titles, page summaries, and paragraphs, Warren noted, should all be focused on making users feel good about Google; they should be “reassuring to the user” and “as simple as possible to contribute to the sense of simplicity and transparency we want the user to feel.” A secondary “CUSTOMIZE” page “might offer more details around each setting definition, but even if the explanation isn’t any more detailed, the page allows the user to modify the 2 settings individually, an important means to convey a sense of control.” Making the option to accept Google’s preferred option on</p>	<p>This entire discussion is irrelevant because it focuses on the appropriate consent bump language for users enabling WAA. This case is about users who <i>disable</i> WAA.</p> <p>Mr. Schneier is mischaracterizing the context of Mr. Warren’s notes within the 2016 document. First, with regards to Mr. Schneier’s claims that the “first objective of the new WAA/sWAA consent bump,” Mr. Warren was commenting specifically on the text of the “consent bumps,” as the objective “Help users feel comfortable choosing accept,” is listed right underneath the heading “Objectives of text.”</p> <p>Moreover, Mr. Schneier distorts the context of the document. The quotes that Mr. Warren relies on are specifically focused on the text and the structure of the “consent bump.” Google, being a customer-centric company, designs its UI and privacy disclosures with its users in mind. Mr. Schneier fails to acknowledge that the documents listed “Transparency,” “Simple words,” and “Real choice” as key concepts when designing the “consent bumps,” and that Google makes it clear to the users that ultimately it’s the user’s choice to “accept to turn on these settings.”<sup>234</sup></p>

<sup>234</sup> GOOG-RDGZ-00149527 (Draft: Documenting consent bump for translators, December 8, at -528-529).

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	a first screen, and requiring users to click through to a secondary screen to reject that option, is also an important means to steer users towards Google’s preferred outcome.	
¶ 381, FN 427 (GOOG -RDGZ-00209109, at -112-114)	Sneaking also occurs through close parsing of language used in the WAA/sWAA disclosures, and by omission of relevant information. In a 2019 email exchange, software engineer Chenjun Wu stated, “We have a few existing systems like online web conversion tracking and store sales direct that do not respect WAA or sWAA today, and enforcing that will have significant impact on the product.” Fellow engineer Uwe Bubeck replied, “conversion tracking wouldn’t be generally subject to sWAA [...] [T]hose controls would only apply if conversions were also used for subsequent personalization. [...] When I look at the controls language by the letter, WAA and sWAA are scoped to personalization. I see no statement being made about collection for conversion tracking/measurement, which I believe means that it might still be allowed even under sWAA opt out.”	Mr. Schneier mischaracterizes the context of this document. It is unclear from the email exchange what exactly Mr. Schneier considers to be evidence of sneaking. When reading the email chain as a whole, it shows that Mr. Wu was attempting to determine whether certain forms of tracking should be controlled by the WAA and sWAA toggles. Additionally, it is important to note that it appears Mr. Bubeck had a clear understanding from reading the WAA and sWAA disclosures, indicating that these disclosures were clearly phrased and user-friendly.

**6. Google’s Disclosures to App Developers**

154. Mr. Schneier claims that Google Analytics for Firebase Terms of Service and Google Analytics for Firebase Use Policy “exemplify the dark pattern of sneaking because Google never informs app developers that data collection via Google services (like Google Analytics for Firebase) will override the privacy controls (like WAA) that Google offers users.”<sup>235</sup> Mr. Schneier argues that Google instead directs app developers to a page

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<sup>235</sup> Schneier Report, ¶ 385.

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that reiterates a promise to users regarding control over the collection of the user’s activity on non-Google apps.<sup>236</sup>

155. Specifically, in order to abide by Google’s Analytics Terms of Service and Google’s Analytics for Firebase Terms of Service, app developers are required to disclose their use of Google Analytics and are informed that “[t]his can be done by displaying a prominent link to the site ‘How Google uses data when you use our partners’ sites or apps’” in their privacy policies.<sup>237</sup> Mr. Schneier focuses on portions of that page to illustrate why developers allegedly believe that users’ control over the collection of their activity on non-Google apps cannot be overridden. He states:

The subsection of “How Google Uses Information from Sites or Apps that Use Our Services” titled “How you can control the information collected by Google on these sites and apps” informs readers that they can use “My Activity...to review and control data that’s created when you use Google services, including the information we collect from the sites and apps you have visited.”<sup>238</sup>

156. Mr. Schneier ignores language within the same Google page that appears directly under “How Google Uses Information from Sites or Apps that Use Our Services” which states that “Many websites and apps use Google services to improve their content and keep it free. When they integrate our services, these sites and apps share information with Google.”<sup>239</sup> Accordingly, this page does not only communicate to app developers a promise to users regarding control over the collection of their data. The page also makes it clear to developers that users are notified that third-party sites and apps collect information and share it with Google.
157. Additionally, Google’s Analytics for Firebase Terms of Service cited by Mr. Schneier communicates to app developers that they must provide notice to users about the

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<sup>236</sup> Schneier Report, ¶ 386.

<sup>237</sup> Schneier Report, ¶ 386; “Google Analytics Terms of Service,” *Google Marketing Platform*, available at <https://marketingplatform.google.com/about/analytics/terms/us/>; “Technologies,” *Google Privacy & Terms*, available at <https://policies.google.com/technologies/partner-sites>.

<sup>238</sup> Schneier Report, ¶ 386.

<sup>239</sup> “Technologies,” *Google Privacy & Terms*, available at <https://policies.google.com/technologies/partner-sites>.

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collection of their data, and as Mr. Schneier states “recommends” the page above as one way of notifying users.<sup>240</sup> In other words, there are various ways third-party apps can notify users about the collection of their data. For example, Lyft’s Privacy Policy to users states:

“Cookies, Analytics, and Third-Party Technologies. We collect information through the use of “cookies”, tracking pixels, data analytics tools like Google Analytics, SDKs, and other third-party technologies to understand how you navigate through the Lyft Platform and interact with Lyft advertisements, to make your Lyft experience safer, to learn what content is popular, to improve your site experience, to serve you better ads on other sites, and to save your preferences.”<sup>241</sup>

158. The above language in Lyft’s Privacy Policy demonstrates (as with many other third-party app policies) that app developers understand that Google collects user activity through Google Analytics and SDK and that they are required to disclose this data collection to their users, which is unrelated to any account-level privacy controls that Google offers to its users.

## **7. Google Employee Statements Regarding WAA/sWAA**

159. Mr. Schneier also refers to multiple examples of Google employees identifying challenges regarding Google’s WAA and sWAA disclosures and claims that the “evidence in this case suggests that Google employees agree with [him].”<sup>242</sup> However, Mr. Schneier has not conducted any methodological studies on user perception regarding the WAA and sWAA disclosures. Instead, Mr. Schneier cites a series of deposition testimonies and internal communications from Google employees regarding feedback on WAA/sWAA disclosures and other Google products, and uses that to speculate about

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<sup>240</sup> Schneier Report, ¶ 386.

<sup>241</sup> “Lyft Privacy Policy,” *Lyft*, December 12, 2022, available at <https://www.lyft.com/privacy>.

<sup>242</sup> Schneier Report, ¶ 389.

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what the user is likely to perceive in this matter. Mr. Schneier then concludes that Google purportedly “ignored” the concerns of its employees.<sup>243</sup>

160. **Tables 9 to 13** contains the Google employee statements Mr. Schneier relies on to support his claim that Google employees “agree with [him]” with respect to the alleged problems with Google’s WAA and sWAA disclosures. After reviewing the documents in detail, I conclude that the documents cited by Mr. Schneier contain the following issues: 1) the documents were unrelated to Google Analytics for Firebase and the Firebase platform, 2) the context of the documents were unclear, 3) Mr. Schneier is mischaracterizing/misunderstanding the documents or testimony, and 4) the studies cited by Mr. Schneier are not relevant to the US market. I will now provide specific examples which highlight why Mr. Schneier’s document review is problematic.
161. **Table 9** below contains sources relied on by Mr. Schneier that are unrelated to Google Analytics for Firebase and the Firebase platform. For example, Mr. Schneier references an email from Dave Kleidermacher (currently Google’s Vice President of Engineering for Android) which discusses the implementation of a switch at the device or account level which will prevent user activity from being tracked in any app, as well as testimony from Mr. Miraglia stating that he was “‘not aware of any setting that’s scoped’ that way.”<sup>244</sup> However, Mr. Schneier failed to mention that the context for Mr. Kleidermacher’s email and Mr. Miraglia’s testimony was actually discussing the enhancement of Google’s incognito mode to make it “more prevalent and more useful to users.”<sup>245</sup> Neither Mr. Kleidermacher’s email nor Mr. Miraglia’s testimony was related to WAA or Firebase SDK. This is but one example of how Mr. Schneier relies on quotes that are unrelated to Google Analytics for Firebase and the Firebase platform.

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<sup>243</sup> Schneier Report, Section 11.7.

<sup>244</sup> Schneier Report, ¶ 391; Miraglia Deposition, pp. 128:21-129:3.

<sup>245</sup> Miraglia Deposition, pp. 130:18-131:9.



*Highly Confidential – Attorneys’ Eyes Only***Table 9: Responses to Mr. Schneier’s Claims Regarding Google Employee Statements Which Are Unrelated to Google Analytics for Firebase and the Firebase Platform**

Schneier Report Source	Schneier’s Claims	Response to Mr. Schneier’s Claims
¶ 391, FN 436 (GOOG-RDGZ-000150939)	In a 2018 email thread, Dave Kleidermacher—now Google’s Vice President of Engineering for Android—wrote, “If a user could flip the switch at the device (or account) level and have confidence in not having activity tracked in ANY app, it would completely change the way privacy-conscious users and influencers view Google (and Android).”	Mr. Schneier is taking the document out of context. The document cited is about Google’s incognito mode, and not about WAA and sWAA data collection. Additionally, the email chain references user behavior observations from Google’s “Pinecone studies,” which are almost entirely based in Europe.
¶ 391, FN 437 (Miraglia Deposition, pp. 128:21-129:3)	However, when asked in October 2022 whether such a switch had ever been implemented, Eric Miraglia replied that he was “not aware of any setting that’s scoped” that way.	Mr. Schneier takes Mr. Miraglia’s testimony out of context. His testimony was in connection with the 2018 email thread discussed above and had nothing to do with WAA or Google Analytics for Firebase. As previously stated, this document is about incognito mode. At deposition, Mr. Miraglia explained that “[i]n this context” what he would have been “advocating for is. . .to make incognito mode more prevalent and more useful to users.” <sup>246</sup>
¶ 396, FN 444 (GOOG-RDGZ-00043816)	Mr. Ruemmler also expressed his concerns about the clarity of Google’s disclosures about Google’s “My Activity” page, and about the range of information—and misinformation—about users’ doings online that are collected and stored:  “I’ve uncovered several problems with My Activity over the last few weeks and wonder what its actual purpose is within Google. I understand this is where search history for google.com is stored and it allows users to view and delete that history. That is great. Anything	Mr. Ruemmler testified that the contents of the email cited by Mr. Schneier is focused on the “Gmail ads issue,” which is not relevant to this case. <sup>247</sup> The excerpt which Mr. Schneier cites comes from a longer thread where Mr. Ruemmler poses various questions to members of the PDPO about the type of information that a user might see in their My Activity page beyond “Gmail data,” or Gmail search history,” which he was familiar with. His questions are based on a misconception about the scope and the goal of the My Activity tool, which Mr. Monsees clarifies is “a centralized tool to

<sup>246</sup> Miraglia Deposition, p. 131:4-9.<sup>247</sup> Ruemmler Deposition, pp. 165:14-168:20.

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	<p>else beyond search data, is quite frankly confusing. For instance, I found that very detailed Google Pay data is being included in My Activity which was quite shocking to me. I would expect that data to stay in Google Pay and not have a copy in My Activity. I also found false “Ads” activity that was not only incorrect but not useful even if it had been correct.... I also turned off WAA and still received both of the above entries in My Activity. Based on the external documentation, it sounds like turning off WAA should result in an empty My Activity, but that is not the case. I’m OK with that, but it should be very clear that WAA is not associated with everything in My Activity and I don’t believe that is the case today.... The whole WAA story is also quite confusing.</p> <p>“My Activity is confusing at best for your average user.... The product is not cohesive and thus confusing.”</p>	<p>manage information in your Google Account about ‘the things you do on and with Google services.’”<sup>248</sup> He adds that “[d]ata may be stored based on the legal basis for which is collected -- not all data at Google is stored or used the same way.”<sup>249</sup> Mr. Ruemmler’s comments do not prove anything but that Google has a culture of openness and innovation where all employees—even those with little exposure to WAA—can escalate perceived issues to the PDPO. Moreover, as described in Table 4 above, at deposition, Mr. Ruemmler explained that he had a “misunderstanding” about WAA.<sup>250</sup> He told Plaintiffs that his work was in the Workspace and Gmail team, where “everything is GAIA tied,” and that he does not “work in WAA.” So, he had assumed that “if it’s not GAIA tied, it’s not there.” Mr. Ruemmler stated that “after gaining more knowledge,” he became aware of Google’s “other mechanisms used to store the data at Google anonymously.”<sup>251</sup></p>
¶ 397, FN 453 (GOOG-RDGZ-00159759)	<p>In a chat exchange that same month, Principal Engineer Othar Hansson described his feelings about Google’s consent settings: “imagine how this looks to a normal user. I feel like I only understand it myself because I took AP Google History.”</p>	<p>Mr. Schneier’s excerpt is about an unrelated product. In the first line, Mr. Hansson makes clear that he is commenting on the “consent settings in the Discover feed.” The “Discover” product and how it interacts with WAA are unrelated to Google Analytics for Firebase or the Firebase platform, and thus are not relevant to this case.</p>
¶ 398, FN 457 (GOOG-RDGZ-00090236, at -239)	<p>Google has also conducted “numerous” user studies that have</p>	<p>Mr. Schneier appears to be taking the quotes out of context. The</p>

<sup>248</sup> GOOG-RDGZ-00043816 (Email from Chris Ruemmler titled “My Activity Support/Viability,” July 20, 2020, at -816).

<sup>249</sup> GOOG-RDGZ-00043816 (Email from Chris Ruemmler titled “My Activity Support/Viability,” July 20, 2020, at -817).

<sup>250</sup> Ruemmler Deposition, pp. 72:21-73:3.

<sup>251</sup> Ruemmler Deposition, pp. 74:12-24, 75:23-77:11.

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	concluded that “WAA just isn’t clear to users.”	presentation is titled “Retention Cards Launch in Personalized Privacy Checkup,” and includes initial insights as to how “user[s] interacted with these three retention cards” within WAA, Location history, and YouTube History. These Privacy Checkup retention cards are not the disclosures at issue in this case.
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162. **Tables 10 and 11** below contain sources relied on by Mr. Schneier, including emails, internal messages, documents and presentations, whose context is unclear. For example, Mr. Schneier references several internal documents and emails from Google employees providing feedback on how “WAA isn’t understood” or how there is an “ongoing struggle that people don’t understand what Web & App Activity is.”<sup>252</sup> However, these comments are taken out of context (or the context is unknown). Accordingly, it is impossible for Mr. Schneier to determine if these documents are even relevant to the claims of the case.
163. Moreover, contrary to Mr. Schneier’s claims, this feedback from Google employees clearly shows that Google develops products with a goal of improving user experience. The documents that Mr. Schneier references are examples of Google’s customer-centric culture, and how Google strives to “meet[] user needs and... lead the industry” with respect to privacy.<sup>253</sup> Google frequently makes adjustments to its UI design and privacy disclosures page in response to user feedback. For example, Eric Miraglia testified that “learnings that came back from research studies had significant impact on the product.”<sup>254</sup> Miraglia further provided an example of how Google “add[ed] videos to the

<sup>252</sup> See, e.g., GOOG-RDGZ-00171164 (Email from Tess Lueth titled “[For XFN review],” February 8, 2019, at -164); GOOG-RDGZ-00087964 (Email from Brenda Chen titled “WAA Retention,” April 3, 2019, at -964). See also, Schneier Report ¶ 397; GOOG-RDGZ-00203674 (Outline for Sarah’s Feb 13, 2020 Privacy UX Kickoff Talk); GOOG-RDGZ-00129096 (Email from Arne de Booij titled “Re: Program Review: Privacy Surfaces,” October 22, 2020).

<sup>253</sup> GOOG-RDGZ-00203674 (Outline for Sarah’s Feb 13, 2020 Privacy UX Kickoff Talk, at -675).

<sup>254</sup> Miraglia Deposition, p. 217:5-17.

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Privacy Policy page” as an attempt to “increase end user comprehension of all of the written texts [Google] had about privacy.”<sup>255</sup>

**Table 10: Responses to Mr. Schneier’s Claims Regarding Google Employee Statements Where Context of Email or Messages are Unclear**

Schneier Report Source	Schneier’s Claims	Response to Mr. Schneier’s Claims
¶ 393, FN 439 (GOOG-RDGZ-00089546)	Mr. Ruemmler reiterated his concerns in several 2020 email exchanges with colleagues: “Web and App Activity is the worst name ever. This is part of the problem with the WAA bit. What does it ACTUALLY control? It is not obvious at all from our documentation. We need to be very clear about what is controlled by this flag.”	As discussed in Table 4 above, Mr. Schneier repeatedly cherry picks excerpts from Mr. Ruemmler’s emails and disregards points raised in Mr. Ruemmler’s own testimony. At deposition, Mr. Ruemmler explained that he worked primarily within the Workspace and Gmail team, where “everything is GAIA tied.” <sup>256</sup> So, he had assumed that “if it’s not GAIA tied, it’s not there.” Mr. Ruemmler also stated that “after gaining more knowledge,” he became aware of Google’s “other mechanisms used to store the data at Google anonymously.” <sup>257</sup>
¶ 397, FN 445 (GOOG-RDGZ-00171164)	In a February 2019 email, Group Product Marketer Ruchi Bezoles wrote that “WAA isn’t understood either.”	Mr. Schneier cites this as an example of a Google employee’s concern about Google’s disclosures pertaining to WAA/sWAA. Mr. Schneier fails to mention that he took this quote from the middle of a sentence where Ruchi Bezoles appears to be passing on someone else’s comment with no additional context. Without the context of that conversation, Mr. Schneier cannot draw a reliable inference from those words. Furthermore, this email thread includes comments to a document titled “[For XFN review] Privacy Advisor in Maps film script” which does not help us understand one way or another what Ruchi was commenting on and whether their comments can help us understand what users understood

<sup>255</sup> Miraglia Deposition, pp. 187:10-22, 217:19-218:1.

<sup>256</sup> Ruemmler Deposition, pp. 74:4-24.

<sup>257</sup> Ruemmler Deposition, pp. 75:23-77:11.

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		Google to do with their data when they toggled WAA off.
¶ 397, FN 447 (GOOG-RDGZ-00087964)	In an April 2019 email, UX Researcher Brenda Chen described the “ongoing struggle that people don’t understand what Web & App Activity is.”	Mr. Schneier cites this as an example of a Google employee’s concern about Google’s disclosures pertaining to WAA/sWAA. However, the author Brenda Chen appears to be commenting on a document whose content is unknown and whose relevance to the issues in this case has not been established.
¶ 397, FN 449 (GOOG-RDGZ-00044478, at -482)	In a July 14, 2020, email, Group Product Manager J.K. Kearns wrote an email stating that “To me, it feels like a fairly significant bug that a user can choose to turn off WAA, but then we still collect and use the data (even locally).”	This email thread appears to be about a variety of experiments with products such as Google Search and the disabling of on-device search history for certain users. Mr. Schneier has not demonstrated why or how these experiments and corresponding employee deliberations should apply to Google employees’ or users’ impressions about WAA disclosures generally.
¶ 397, FN 450 (GOOG-RDGZ-00169704)	In a July 2020 chat exchange discussing WAA and sWAA, Google Vice-President Meagan Pi remarked that “I think I barely understand what all of these mean and most users won’t have a clue.”	The context of Meagan Pi’s remarks cannot be established as they are in response to a screenshot. Without observing the contents of the screenshots, it is unclear whether the chat exchange is relevant to this case.
¶ 397, FN 451 (GOOG-RDGZ-00044356)	In an August 2020 email, Senior Financial Analyst Henry Wong noted that “users who have turned off WAA...have given us a clear signal that they do not want Google to know what they are searching for” and while “technically we don’t,” “it just feels like we are tracking them even though they told us not to.”	This email exchange is related to Google’s Search product and is not relevant to this case.
¶ 397, FN 452 (GOOG-RDGZ-00129096, at -097)	In an October 2020 email, Product Manager Sam Heft-Luthy of Google’s Privacy and Data Protection Office noted that “we’re stretching ourselves thin, especially given that we are doing a lot to get users to understand a system that is	Mr. Schneier inaccurately attributes the comment to Sam Heft-Luthy. The email exchange contains “Highlights” from a “Program Review: Privacy Surface” meeting within Google. Heft-Luthy was merely summarizing the key

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	just fundamentally difficult to get (WAA, GAP, etc.).”	takeaways from the meeting.  If anything, this quotation demonstrates Google’s culture of improvement and its desire to help users understand their settings. <sup>258</sup>
¶ 397, FN 454 (GOOG-RDGZ-00129042, at -043)	Also in October 2020, UX Manager Kalle Buschmann remarked more generally that “It is not only our consent that is too convoluted, the underlying approach and systems to capturing and using data as well. We can’t fix the ‘surface’ experience without radically changing the machine. Only then humans (users or Googlers) will have a chance to understand it.... Our goal is to give people a good sense of where their data is used....”	Mr. Schneier fails to acknowledge that the quote from Kalle Buschmann was a proposed response to a “trick question” regarding two different types of Google requests (in-context consent and WAA requests). Buschmann appears to be commenting on the nuances of the question at-hand, and not, as Mr. Schneier contends, making an assertion about WAA disclosures.
¶ 397, FN 455 (GOOG-RDGZ-00129084)	Likewise, that same month, Senior Interaction Designer Elyse Bellamy stated that “from my perspective we don’t (as a company) have a very even approach to determining what we need to ask permission for, and what we don’t—also, how much contextual information is appropriate/necessary to get consent.”	Mr. Schneier fails to acknowledge that the quote he relies on from the chat exchange is commentary from Elyse Bellamy on images of passages whose content is unknown. Mr. Schneier assumes that Bellamy’s comment is relevant to this case, but does not provide any additional context as to what she is commenting on.  Mr. Schneier fails to mention that in this same document, Arne De Booij discusses how Google’s permission scheme is context dependent, and that there are many contexts to consider, such as “at sign-in,” “at first launch,” “at xth launch,” and “after action X is taken.” <sup>259</sup> This underscores that privacy design is contextual and individualized, and that UI design and privacy disclosure must take into account heterogeneity among users.

<sup>258</sup> GOOG-RDGZ-00129096 (Email from Arne de Booij titled “Program Review: Privacy Surfaces,” October 22, 2020, at -097).

<sup>259</sup> GOOG-RDGZ-00129084 (Email from Elyse Bellamy containing chat history, October 21, 2020, at -086).

*Highly Confidential – Attorneys’ Eyes Only***Table 11: Responses to Mr. Schneier’s Claims Regarding Google Employee Statements  
Where Context of Presentations or Documents are Unclear**

Schneier Report Source	Schneier’s Claims	Response to Mr. Schneier’s Claims
¶ 397, FN 448 (GOOG-RDGZ-00203674, at -675)	In her outline for a February 2020 presentation on user interface design and privacy, Senior UX Director Sarah Hammond offered WAA as an example of a control that’s “a tricky one to understand.”	Mr. Schneier does not provide sufficient context surrounding the comment to make a reliable connection to the allegations in this case. As Arne De Booij stated at deposition, it is unclear what Hammond’s perspective or conflict was, and what Hammond “meant by ‘tricky.’” <sup>260</sup> Mr. Schneier is attempting to generalize an internal Google communication to fit his claims.
¶ 398, FN 458 (GOOG-RDGZ-00151484, at line 38)	For example, one User Experience Research study included as a “key insight” that “WAA settings are hard to understand.”	Mr. Schneier does not acknowledge that the excel sheet where this “key insight” was obtained from does not describe or specify the scope of the study, or what the objective of the study was. Moreover, it is also unclear whether the study involved participants in the U.S., Europe, or elsewhere. Therefore, the applicability of this study to this case is unclear.
¶ 398, FN 459 (GOOG-RDGZ-00182573, at -581)	Additionally, an April 2020 study titled “Retention Controls Comprehension” found that “all participants expected turning WAA toggle off to stop saving their activity” and “all participants expected turning off toggle to stop their activity from being saved.”	Mr. Schneier does not consider that this presentation appears to be assessing user perception of “newly introduced retention controls” and specifically, whether Google would continue to save activity to their account when they turned the WAA toggle off, not whether this would affect the use of this activity by third-party apps using Google analytics, which is the user expectation at issue in this case. <sup>261</sup> Mr. Schneier also fails to mention that “learnings that came back from research studies had significant impact on the product,” and that Google “add[ed] videos to the privacy policy page” as an attempt to “increase end user

<sup>260</sup> Deposition of Arne De Booij, February 7, 2023 (“De Booij Deposition”), pp. 119:23-120:17.

<sup>261</sup> Fair Deposition, p. 186:14-25.



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		comprehension of all the written texts [Google] had about privacy.” <sup>262</sup>
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164. **Table 12** below contains deposition testimonies and internal communications from Google employees that were mischaracterized by Mr. Schneier in his report. One prominent example which Mr. Schneier relies upon is a series of internal communications from Chris Ruemmler, where Ruemmler appears critical of the WAA documentation and disclosure. Mr. Schneier proceeds to state that David Monsees subsequently acknowledged in his testimony that Google did not make any “responsive modifications” to the WAA and sWAA disclosures.<sup>263</sup> However, there are several issues with the narrative that Mr. Schneier has developed, based on the communications testimony of Mr. Ruemmler and Mr. Monsees.

165. First, Mr. Schneier failed to highlight the fact that the July 2019 email from Mr. Ruemmler concerning the WAA Help Page was due to a “misinterpretation” and “misunderstanding” by Mr. Ruemmler on WAA data.<sup>264</sup> Mr. Ruemmler testified that he did not work on the product, and was unclear as to how Google’s data collection practices differed between the different WAA settings.<sup>265</sup> Second, Mr. Schneier’s claim that Mr. Monsees confirmed that there were no “responsive modifications made to Google’s WAA and sWAA disclosures” is also incorrect.<sup>266</sup> In his testimony, Mr. Monsees merely testified that he was not “aware of any changes to Google Analytics for Firebase third-party developer disclosures particularly given the context of this discussion with Mr. Ruemmler.”<sup>267</sup> Contrary to Mr. Schneier’s claims, Mr. Monsees testimony did not indicate that there were no modifications being made to Google’s WAA and sWAA disclosures for other users.

<sup>262</sup> Miraglia Deposition, pp. 187:10-25, 217:19-218:1.

<sup>263</sup> Schneier Report, ¶¶ 393-394.

<sup>264</sup> Ruemmler Deposition, pp. 84:3-85:8.

<sup>265</sup> Ruemmler Deposition, pp. 115:16-116:19.

<sup>266</sup> Schneier Report, ¶ 394; Monsees Deposition, pp. 235:5-236:4.

<sup>267</sup> Monsees Deposition, pp. 235:5-236:4.

*Highly Confidential – Attorneys’ Eyes Only***Table 12: Responses to Mr. Schneier’s Claims Regarding Google Employee Statements Where Mr. Schneier Mischaracterizes Documents or Testimony**

Schneier Report Source	Schneier’s Claims	Response to Mr. Schneier’s Claims
¶ 390, FN 435 (GOOG-RDGZ-00018270)	In a 2018 internal document, David Monsees described the “opportunity” for improvement of Google’s existing user data controls (UDC): “UDC’s value prop [proposition] is not clear, what is the overall purpose of the settings. WAA and sWAA are too big and non-specific for users to understand; what is ‘web & app’.... UDC covers a lot, but only controls a fraction of the information that Google uses to personalize.”	Mr. Schneier is mischaracterizing the context of this document. This document does not show that Google is “far from transparent,” <sup>268</sup> but rather that Google employees recognize that there is an opportunity to improve Google UI design and privacy disclosures for users. <sup>269</sup>  Moreover, this document discusses “UDC” generally and compliance with the GDPR (“[a]ddress[ing] GDPR granular/specific... requirements.”). <sup>270</sup> It is not clear from the document whether this is about the US versions of these settings.
¶ 392, FN 438 (GOOG-RDGZ-00024709, at -709-710)	“[I]t appears we have a real problem here with accurately describing what happens when WAA is disabled. We should fix the current wording to reflect reality and if we make the change to temp GAIA logging, then we need to be very clear about what data is collected with WAA off. [...] [G]iven the way on/off works, one has to then assume that disabled (off) would be the exact opposite of what is described for what happens when the WAA bit is on. Today, we don’t accurately describe what happens when WAA is off.... If I choose not to store data in my account, then Google should not have access to the data either as the data should not be in the account. What you are stating is WAA (or any of the other controls) does not	Mr. Ruemmler explained the context of this statement during his deposition, which Mr. Schneier ignores. Mr. Ruemmler explained that his work at Google was specific to the Workspace and Gmail team, where “everything is GAIA tied.” <sup>271</sup> Mr. Ruemmler thus was under the impression that if WAA was off, no data was sent to Google because there would be no resulting GAIA tied data to send. Mr. Schneier repeats excerpts of Ruemmler’s misunderstanding discussed at Table 4 above to generalize that Google employees repeatedly identified problems with Google’s disclosures regarding WAA, but that does not make it a wide-spread misunderstanding.  Mr. Monsees responded to this

<sup>268</sup> Schneier Report, ¶ 390.<sup>269</sup> See, e.g., Heft-Luthy Deposition, p. 25:4-7.<sup>270</sup> GOOG-RDGZ-00018270 (Document titled “Goal of UDC 1.0,” at -270).<sup>271</sup> Ruemmler Deposition, pp. 74:4-24, 75:23-77:11.

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	actually control what is stored by Google, but simply what the user has access to. This is really bad. If we are storing data that the user does not have access to, we need to be clear about that fact. In this case, the user has a false sense of security that their data is not being stored at Google, when in fact it is.”	statement by stating that he has “discussed rewrites of all the UDC help center articles (including WAA/sWAA) to create a more consistent structure to explain the kind of ‘if it’s on’ vs. ‘if it’s off’ points” brought up by Mr. Ruemmler. <sup>272</sup> The testimony and email both support the fact that Google is customer-centric and is constantly working to improve its products for users.
¶ 393, FN 440, 441 (GOOG-RDGZ-00130745, at -746-747)	“I’m looking for something that explicitly describes all of the knobs and their default states. I don’t think I could describe what exactly is enabled and disabled by WAA/SAA/etc. based on current documentation.” WAA, Mr. Ruemmler asserted, was “completely broken” with “no way for the user to determine what this actually controls.”	Mr. Schneier fails to mention that while Mr. Ruemmler does state that WAA was “in a busted state today,” within the same email chain, Mr. Ruemmler provided an update which states that WAA “is being fixed (hooray!).” Furthermore, as discussed in Table 4 above, Mr. Ruemmler testified that he had a “misunderstanding with the way WAA works” and that “after gaining more knowledge,” he became aware of Google’s “other mechanisms used to store the data at Google anonymously.” <sup>273</sup>
¶ 394, FN 442 (Monsees Deposition, pp. 235:5-25 and 236:1-5)	But in his deposition, Mr. Monsees acknowledged that no further action was taken to address Mr. Ruemmler’s concerns, nor were any responsive modifications made to Google’s WAA and sWAA disclosures.	Mr. Schneier mischaracterizes Mr. Monsees’ testimony. Mr. Monsees testified that he was not “aware of any changes to Google Analytics for Firebase third-party developer disclosures particularly given the context of this discussion with Mr. Ruemmler.” <sup>274</sup> The testimony was related to a July 2019 email from Mr. Ruemmler, where Mr. Ruemmler clarified that his concerns were primarily due to a misinterpretation and misunderstanding of WAA data. <sup>275</sup>  Additionally, Mr. Ruemmler himself also testified that he thought

<sup>272</sup> Ruemmler Deposition, Exhibit 7.

<sup>273</sup> Ruemmler Deposition, pp. 72:21-73:3, 75:23-77:11.

<sup>274</sup> Deposition of David Monsees, September 15, 2022 (“Monsees Deposition”), pp. 235:5-236:4.

<sup>275</sup> Ruemmler Deposition, pp. 115:16-116:19.

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		Mr. Monsees took Mr. Ruemmler’s concerns seriously. <sup>276</sup>
¶ 397, FN 446 (GOOG-RDGZ-00046758, at -759)	In a February 2019 product design document, a Google developer described the business rationale for its decision to require users to enable WAA for personalization in apps that previously had not needed it: “The steering committee elected to turn off personalization for WAA-off users and coupling logging policy with personalization decisions, due to concerns over loss of data for analysis and high percentage of users with WAA-off at the time (30–40%). The resulting product behavior is very confusing to users, particularly the growing class concerned about privacy.”	Mr. Schneier erroneously claims that the quoted text is the “business rationale for [Google’s] decision to require users to enable WAA for personalization in apps that previously had not needed it.” The quote Mr. Schneier references is actually found in the “Background” section of the document, and is meant to provide context for Google’s proposed changes to WAA-off Logging. Moreover, as is clearly stated in the “Objective” section, the purpose of this change to Google’s WAA-off Logging is the following: “Users with Web and App Activity (WAA) off have not provided [consent for Google to log personal features],” and that the “goal of this project is to change WAA-off logging” to reduce “user frustration.” <sup>277</sup> This quote shows that Google responds to users’ privacy preferences, and was looking to provide users with “appropriately scoped personalization controls” while “respecting the user’s privacy preferences.” <sup>278</sup>  Additionally, the same document contains a section labeled “Privacy Considerations,” which describes what Google considers are “user expectation[s] when WAA is disabled,” and that Google was “working with Legal to determine if any user-facing policy changes are needed for the logging rollout.” <sup>279</sup> This is an example of Google’s

<sup>276</sup> Ruemmler Deposition, p. 168:6-20.

<sup>277</sup> GOOG-RDGZ-00046758 (Document titled “Design Doc for Changing WAA-off Logging,” June 25, 2020, at -759).

<sup>278</sup> GOOG-RDGZ-00046758 (Document titled “Design Doc for Changing WAA-off Logging,” June 25, 2020, at -759).

<sup>279</sup> GOOG-RDGZ-00046758 (Document titled “Design Doc for Changing WAA-off Logging,” June 25, 2020, at -768).

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		customer-centric culture, and how they often considered UI design and privacy disclosure changes with the user in mind.
¶ 397, FN 456 (GOOG-RDGZ-00203679, at -680)	Elsewhere Ms. Bellamy noted, “Not only are the implications of WAA extremely broad and varied, but people use Google in such diverse ways—much of the language intended to be comprehensive feels vague and hard-to-parse for non-engineers/lawyers.”	The source cited by Mr. Schneier supports the idea that privacy concerns are contextual and individualized. Google, being a customer-centric company, understands that its users are heterogeneous and have varying expectations for privacy disclosures. Based on my UI analysis on Google’s Privacy Policy, it is evident that Google considers user heterogeneity when developing its UI design and privacy disclosures, as Google’s UI design and privacy disclosures are user-friendly and employ industry best practices.

166. Finally, **Table 13** below contains user studies cited by Mr. Schneier whose findings are focused on areas outside of the U.S. Yet, Mr. Schneier treats them as representative of users located in the U.S. For example, Mr. Schneier cites a June 2020 research proposal as support that most respondents “believe that turning off WAA will result in no data being collected from their activity and no personalization in Google’s products and services.”<sup>280</sup> However, Mr. Schneier fails to acknowledge that the “N3 Research Project” was primarily “related to account creation in Europe.”<sup>281</sup> In another instance, Mr. Schneier references a user study concerning “user understanding of Google’s user device controls.”<sup>282</sup> As Mr. Schneier points out, the study “consisted entirely of German citizens with a specific interest in privacy.”<sup>283</sup> Mr. Schneier has not shown how or why this study is relevant to the US market.

<sup>280</sup> GOOG-RDGZ-00043294 (Document titled “N3 Research Request - [REDACTED],” June 8, 2020 at -299).

<sup>281</sup> De Booi Deposition, pp. 99:1-6, 102:3-8.

<sup>282</sup> Schneier Report, ¶ 398.

<sup>283</sup> Schneier Report, ¶ 398.

*Highly Confidential – Attorneys’ Eyes Only***Table 13: Responses to Mr. Schneier’s Claims Regarding Google Employee Statements Where the Study is Not Relevant to the US Market**

Schneier Report Source	Schneier’s Claims	Response to Mr. Schneier’s Claims
¶ 398, FN 460 (GOOG-RDGZ-00043294, at -299)	In a June 2020 research proposal, senior research manager Arne De Booij anticipated that “Most respondents will believe that turning off WAA will result in no data being collected from their activity and no personalization in Google products and services.”	Mr. Schneier does not consider that the source refers to “N3 Research request,” which according to De Booij, is related to the Narnia 3 project. According to De Booij, the Narnia 3 project was primarily “related to account creation in Europe.” <sup>284</sup> Mr. Schneier has not shown how or why the results of a study focused in Europe would be applicable to the US.
¶ 398, FN 461 (De Booij Deposition, pp. 80:9-96:22)	In his deposition, Mr. De Booij acknowledged that the subject pool for a study of user understanding of Google’s user device controls, including the WAA/sWAA controls, was “not a general population representative sample,” but consisted entirely of German citizens with a specific interest in privacy. A series of one-on-one interviews with the research subjects yielded the recommendation, “Be more explicit of the effects of activation/deactivation. Use simple language.” This recommendation implies that even privacy-conscious individuals did not understand Google’s privacy disclosures, or “the effects of activation/deactivation” of user controls.	As Mr. Schneier himself points out, the study consisted “entirely of German citizens with a specific interest in privacy.” It is therefore not indicative of the average U.S. user. Moreover, De Booij testified that the study was largely prepared by a third-party vendor, which means that “they did most of the research work” that resulted in the recommendation that Mr. Schneier excerpts here. Mr. De Booij stated that he could not tell from that report “what they meant by ‘explicit’ in this particular example for this particular study.” <sup>285</sup> Thus, it would be inappropriate for Mr. Schneier to pontificate on what this recommendation implies and then proceed to apply the recommendation to this case when Google’s own senior research manager felt unqualified to do so. <sup>286</sup>

<sup>284</sup> De Booij Deposition, pp. 99:1-6, 102:3-8.

<sup>285</sup> De Booij Deposition, p. 96:7-12.

<sup>286</sup> De Booij Deposition, pp. 80:21-81:12, 95:22-96:12.

*Highly Confidential – Attorneys’ Eyes Only***IX. CONCLUSION**

167. Mr. Schneier has failed to consider that users choose to use Google and benefit from Google services and the personalization options Google offers, including WAA and sWAA. Google may collect user data to improve user interaction with Google by identifying and developing products and features users want. Google is a highly customer-centric business that operates in a technologically complex environment. As a result, Google strives to make its interface easy to use and transparent to its highly diverse and heterogeneous user base. Google’s culture of focusing on the user, and its desire to consistently improve its products and services has led to users repeatedly choosing to use Google’s products and services.
168. Mr. Schneier has failed to consider that users are heterogeneous and have different privacy preferences. Google’s UI design caters to the needs of these heterogeneous users, and provides users with control over the company’s collection of data.
169. Mr. Schneier’s claims that Google’s notice and consent procedures are confusing has no merit and is unsupported by any scientific (or other) methodology.
170. Mr. Schneier’s text analysis of Google’s TOS and privacy policies is methodologically flawed and not valid. Mr. Schneier has not presented any evidence as to why a readability calculator is a valid proxy for users’ actual perceptions, nor does he apply the readability calculator to the specific at-issue WAA or sWAA disclosures. Google’s UI design and user-facing disclosures, including the terms of service and privacy policies criticized by Mr. Schneier, are user-friendly and evolutionary. Google adopts key principles of UI design such as providing progressive disclosure and giving users control over their navigational choices to satisfy the user’s need, resulting in notice and consent procedures that are user-friendly and evolutionary.
171. Mr. Schneier’s conclusion that Google’s WAA and sWAA user interface and disclosures exemplify “dark patterns” is not supported by any scientifically based methodology. “Dark patterns” are a nebulous and subjective construct, and Mr. Schneier appears to have developed his conclusions based on his mischaracterization or misinterpretation of Google documents and his own misunderstandings of the “dark patterns” literature. The



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disclosures at issue—including the WAA and sWAA disclosures and disclosures made to third-party developers—do not exhibit “dark patterns” under any of the numerous definitions Mr. Schneier seeks to employ.

172. Mr. Schneier also inappropriately mischaracterizes deposition testimony and internal communications from Google employees regarding WAA and sWAA disclosures and other Google products. He takes those statements out of context and twists them to say that Google employees agree with him with respect to the issues *in this case*. In fact, in many cases, there is direct evidence that those statements concern entirely different issues. Mr. Schneier’s conclusion that Google purportedly “ignored” the concerns of its employees is incorrect, as many of the documents demonstrate Google’s repeated commitment to providing users with transparency and control. Mr. Schneier also ignores relevant testimony and other context that make clear that some Google employees misunderstood the company’s WAA product and data collection practices at the time they made the statements in question.
173. Contrary to Mr. Schneier’s assertions, the disclosures accompanying the WAA toggle and on the WAA help page are examples of user-friendly UI design. They explain what WAA does—save certain activity in a user’s account for purposes of personalization—accurately and in an understandable manner. It would not be good UI design or be beneficial for the user to describe in the WAA disclosures the many dimensions of data collection outside of a user’s Google Account that WAA *does not* control. This would overwhelm the user with information unrelated to WAA’s functionality, such as, when WAA is off, whether analytics can still be used on third-party apps like Lyft or the New York Times. By requiring that this information appear in the privacy policy of the individual apps, Google is providing the user with the information they need to understand WAA without overwhelming the user with confusing and irrelevant information. This is appropriate and good UI design.

\* \* \*

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Signed on the 31<sup>st</sup> day of May, 2023 in Encinitas, CA.

A handwritten signature in black ink, reading "Donna L. Hoffman". The signature is written in a cursive, flowing style. The first name "Donna" is written with a large, stylized 'D'. The middle initial "L" is written in a simple, straight line. The last name "Hoffman" is written with a large, stylized 'H' and a long, sweeping tail that extends to the right.

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Donna L. Hoffman

## Appendix A

### DONNA L. HOFFMAN

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### Education

**Ph.D.**, L.L. Thurstone Psychometric Laboratory, University of North Carolina, Chapel Hill, NC, 1984. (Quantitative Psychology with Formal Minor in Marketing from Graduate School of Business Administration.)

**M.A.**, L.L. Thurstone Psychometric Laboratory, University of North Carolina, Chapel Hill, NC, 1980. (Quantitative Psychology.)

**A.B.**, University of California, Davis, California, 1978. (Psychology.)

### Academic Appointments

*The George Washington University, July 1, 2013-present*  
Louis Rosenfeld Distinguished Scholar and Professor of Marketing  
Co-Director, Center for the Connected Consumer

*University of California, Riverside, 2006-2013*  
Albert O. Steffey Chair of Marketing (2011-2013); Chancellor's Chair (2006-2011)  
Co-Director, UCR Sloan Center for Internet Retailing  
Department Chair, Management and Marketing (2006-2011)  
Cooperating Faculty, Department of Psychology (2007-2013)

*Vanderbilt University*  
Professor of Marketing, 2000-2006.  
Co-Director, Vanderbilt University Sloan Center for Internet Retailing, 2003-2006  
Co-Founder & Co-Director, *eLab* Research Laboratory, 1994-2006.  
Director, Electronic Commerce Concentration 1999-2006.  
Marketing Area Head, 2002-2003, 2005-2006  
Associate Professor of Marketing, 1993-2000.  
Founder & Director, Electronic Commerce Emphasis at Owen, 1995-1999. (Emphasis converted to formal concentration in 1999).

*University of Texas (Dallas)*  
Associate Professor, 1991-1993.

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*Columbia University*

Associate Professor, Graduate School of Business, 1987-1990.

Assistant Professor, 1984-1987.

Associate in Business, 1983-1984.

**Visiting Scholar Appointments**

*University of Hong Kong (HKU), January 12-29, 2019*

Visiting Scholar, Faculty of Business and Economics, Department of Marketing

*University of California, San Diego, Fall 2013, Spring 2018*

Visiting Scholar, Rady School of Management

*University of Southern California, Fall 2010*

Visiting Scholar, Marshall School of Business

*Stanford University*

Visiting Scholar, Center for Electronic Business and Commerce (Summer 2000)

Visiting Scholar, Department of Marketing (Summer 1997)

*UCLA*

Visiting Associate Professor, Anderson Graduate School of Management (Summer 1989)

**Professional Experience**

*Interval Research Corporation, Palo Alto, CA, 1995-1999*

Visiting Scholar (summer)

*Research Triangle Institute, N.C., 1980-1981*

Social Science Analyst

**Special Appointments**

President's Information Technology Advisory Committee (PITAC), Socio-Economic and Workforce Panel, 1998.

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### Academic Honors and Awards

- 2021 Best Article Award, *Journal of Consumer Research*. Awarded for Hoffman and Novak (2018), "Consumer and Object Experience in the Internet of Things: An Assemblage Theory Approach," (Volume 44) April 2018.
- 2021 GWSB Dean's Awards for Excellence: Senior Faculty Research Award
- 2020 Finalist for Academy of Marketing Science Best *JAMS Article Award* Published in 2019
- 2019 Winner of the Lazaridis Prize for the Best Paper on the Practice of Marketing as it relates to Innovation, Technology, and Interactivity, awarded by the American Marketing Association (AMA) TechSIG
- 2019 *Journal of Consumer Research* Best Reviewer Award
- 2019 Society for Consumer Psychology Fellow
- 2012 University of Pennsylvania Future of Advertising Center/Wharton Customer Analytics Initiative "Innovative Approaches to Measuring Advertising Effectiveness" Winner for proposal "Crowdsourcing Ad Effectiveness: Can Emergent Segments Produce the Most Effective Online Ads? (\$7,500)
- 2012 MSI Ideas Challenge Winner for proposal "Idea Wars: Developing a Collaborative Research Agenda for the Gamification of Marketing" (\$10,000)
- 2012 Finalist, Paul. D. Converse Award for Outstanding Contributions to the Science of Marketing
- 2011 National Science Foundation Grant # IIS-1114828, "Motivations, Expectations and Goal Pursuit in Social Media," PI (\$413,756 for two years)
- 2011 Robert B. Clarke Outstanding Educator of the Year Award (Direct Marketing Educational Foundation)
- 2011 Marketing Science Institute "Challenges of Communications and Branding in a Digital Era" research proposal competition winner (\$8,750)
- 2011 Robert D. Buzzell MSI Best Paper Award Honorable Mention for "The 'Right' Consumers for the Best Concepts: Identifying and Using Emergent Consumers in Developing New Products" (Hoffman, Kopalle and Novak)
- 2009 Thomson Reuters' Essential Science Indicators cited Professors Donna Hoffman and Tom Novak's *Journal of Interactive Marketing* (2009) article as a "Fast Breaking Paper" (one of the most cited in the past two years) in the entire field of Economics and Business, November 2009.
- 2009 Google/WPP Marketing Research Award (First Round Inaugural Year), "Are Brand Attitudes Contagious?" \$55,000, with Tom Novak
- 2008 Marketing Science Institute Research Grant Award, The "Right" Consumers for the Best Concepts: A Methodology for Identifying Emergent Consumers for New Product Development, \$6,750, with Tom Novak and Praveen Kopalle.
- 2008 National Science Foundation, Global Environment for Network Innovations (GENI) End-User Opt-In Initiative
- 2007 Alfred P. Sloan Foundation Research Networking Workshop Grant Award (\$15,000)

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- 2007 National Retail Federation Ray M. Greenly Shop.org Scholarship (\$2500) to the UCR Sloan Center for Internet Retailing – awarded to Hector Rosales, UCR undergraduate
- 2005 Sheth Foundation/Journal of Marketing Award for long-term contributions to marketing for the article “Marketing in Hypermedia Computer-Mediated Environments: Conceptual Foundations, published in the *Journal of Marketing* (1996).
- 2005 Stellner Distinguished Scholar for 2005-2006, University of Illinois at Urbana-Champaign.
- 2004 Member of marketing department ranked #2 in research impact per faculty member (based on median citation rates) among the top 46 business schools in the United States.
- 2003 ISI Essential Science Indicators cited Professors Donna Hoffman and Tom Novak’s *Marketing Science* (2000) article as “Emerging Research Front” in the entire field of Economics and Business, December 2003.
- 2003 ISI Essential Science Indicators cited Professors Donna Hoffman and Tom Novak for the highest percentage increase in total citations in the entire field of Economics and Business, July 2003.
- 2003 AACSB International Effective Practice: eLab
- 2002 University of North Carolina Distinguished Graduate Alumni  
[http://gradschool.unc.edu/centennial/distinguished\\_graduate.html](http://gradschool.unc.edu/centennial/distinguished_graduate.html)
- 1999 With Professor Tom Novak, voted as one of the top two Internet scientists by over 600 U.S. and European scientists and marketing managers in a survey conducted by the ProfNet Institute for Internet Marketing in Dortmund, Germany.
- 1999 EDSF Excellence in Education Award for Innovation in Higher Education (sponsored by Xerox).
- 1997 EFF (Electronic Frontier Foundation) Honorary Fellow.
- 1996 TLA/SIRS Freedom of Information Award.
- 1991 William O'Dell Award for "Correspondence Analysis: The Graphical Representation of Categorical Data in Marketing Research," *Journal of Marketing Research*, 1986.
- 1991 American Marketing Association Second Annual Advanced Research Techniques Forum Best Paper Award and Best Presentation Award for "Asymmetric Residual Maps for Market Structure Analysis."

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### Research Interests

- Consumer and smart object experience of AI using assemblage theory and object-oriented ontology perspectives
- Impact of anthropomorphism of AI
- Computational approaches (machine learning and NLP methods) for understanding consumer-smart object experience from IoT interaction data
- Self-extension and self-expansion theories of consumers' relationships with objects
- Online consumer behavior and digital marketing strategy

### Research Impact

**36728 citations** in Google Scholar (as of February 2023) + **651** from my 2000 HBR article which Google Scholar doesn't seem to be indexing at the moment:

Google Scholar Page: <https://scholar.google.com/citations?user=FY9GUJgAAAAJ&hl=en>

- h-index=47 (at least 47 articles cited at least 47 times)
- i10-index=82 (82 papers with 10 or more citations)

The 1996 *Journal of Marketing* article on marketing in computer-mediated environments is the most widely cited *Journal of Marketing* article from 1995-2007 and the #1 most cited paper in the entire marketing discipline between 1990-2002 (Stremersch, Verniers and Verhoef 2007).

The 2000 *Marketing Science* article on online customer experience is one of the "all time most highly cited articles" and the top article in terms of "all time citations per year" in *Marketing Science* (Shugan 2008), as well as the 14<sup>th</sup> most cited paper in the entire marketing discipline between 1990-2002 (Stremersch, Verniers and Verhoef 2007)

### Journal Publications

1. Novak, T.P. and D.L. Hoffman (2023), "Automation Assemblages in the Internet of Things: Discovering Qualitative Practices at the Boundaries of Quantitative Change," *Journal of Consumer Research*, 49(5), 811-837. Published Online April 7, 2022.
2. Hildebrand, C., F. Efthymiou, B. Francesc, W.H. Hampton, D.L. Hoffman and T.P. Novak (2020), "Voice Analytics in Business Research: Conceptual Foundations, Acoustic Feature Extraction, and Applications," *Journal of Business Research*, 121 (December), 364-374.



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3. MacInnis, Deborah J., Vicki G. Mortwitz, Simona Botti, Donna L. Hoffman, Robert V. Kozinets, Donald R. Lehmann, John G. Lynch, Jr., Cornelia Pechmann (2020), "Creating Boundary-Breaking Marketing-Relevant Consumer Research," *Journal of Marketing*, 84(2), 1-23.
4. Novak, T.P. and D.L. Hoffman, (2019), "Relationship Journeys in the Internet of Things: A New Framework for Understanding Interactions Between Consumers and Smart Objects," *Journal of the Academy of Marketing Science*, special issue on Consumer Journeys: Developing Consumer-Based Strategy, 47(2), 216-237.  
**Finalist for Academy of Marketing Science Best JAMS Article Award published in 2019**
5. Hoffman, D.L. and T.P. Novak (2018), "The Path of Emergence Experience in the Consumer IoT: From Early Adoption to Radical Changes in Consumers' Lives," *Marketing Intelligence Review: IoT Experiences*, 10(2), 10-17.
6. Hoffman, D.L. and T.P. Novak (2018), "Consumer and Object Experience in the Internet of Things: An Assemblage Theory Approach," *Journal of Consumer Research*, 44(6), April, 1178-1204. **Lead article.**  
**Winner of the 2021 Journal of Consumer Research Best Article Award.**  
  
**Winner of the 2019 Lazaridis Prize for the Best Paper on the Practice of Marketing as it relates to Innovation, Technology and Interactivity, awarded by the American Marketing Association (AMA) TechSIG.**
7. Verhoef, P., Stephen, A., Kannan, P.K., Luo, X., Abhishek, V., Andrews, M., Bart, Y., Datta, H., Fong, N., Hoffman, D., Hu, M., Novak, T., Rand, W., and Zhang, Y. (2017), "Consumer Connectivity in a Complex, Technology-Enabled, and Mobile-Oriented World with Smart Products," *Journal of Interactive Marketing*, 40 (November), 1-8.
8. Hoffman, D.L., T.P. Novak and H. Kang, (2017), "Let's Get Closer: How Regulatory Fit Drives Feelings of Connectedness in Social Media," *Journal of the Association for Consumer Research*, issue on "The Consumer in a Connected World," 2(2).
9. White, T., T. P. Novak and D. L. Hoffman (2014), "No Strings Attached: When Giving It Away Versus Making Them Pay Leads to Negative Net Benefit Perceptions in Consumer-Retailer Exchanges," *Journal of Interactive Marketing*, 28 (August), 184-195.
10. Yadav, Manjit S, Kristine De Valck, Thorsten Hennig-Thurau, D.L. Hoffman and Martin Spann (2013), "Social Commerce: A Contingency Framework for Assessing Marketing Potential," *Journal of Interactive Marketing*, 27 (November), 311-323.

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11. Hoffman, D.L. and T.P. Novak (2012), "Toward a Deeper Understanding of Social Media," *Journal of Interactive Marketing*. (Editorial, Co-Editor, Special Issue on "Social Media"), 26(May), 69-70.
12. Hoffman, D. L. (2011), "Web 2.0 for B2Bs: Strategic Brief," *European Business Review*, November-December, 72-73.
13. Hoffman, D.L. and Novak. T.P (2011), "Marketing Communication in a Digital Era," *Marketing Management*, Fall, 20(3), 37-42, American Marketing Association. **Cover article.** (Invited article to commemorate the 50<sup>th</sup> Anniversary of the Marketing Science Institute.)
14. Hoffman, D.L. and M. Fodor (2010), "Can You Measure the ROI of Your Social Media Marketing?" *Sloan Management Review*, 52(1), Fall, 41-49.
15. Hoffman, D., Kopalle, P., Novak, T. (2010) The "Right" Consumers for Better Concepts: Identifying Consumers High in Emergent Nature to Develop New Product Concepts," *Journal of Marketing Research*, 47 (October).  
**Honorable Mention: 2011 Robert D. Buzzell MSI Best Paper Award for significant contribution to marketing practice and thought.**
16. Hoffman, D.L. (2009), "Managing Beyond Web 2.0," *McKinsey Quarterly*, July.
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36. Hoffman, D.L. (2017), "Consumer-Object Relationship Journeys," paper presented at the Invited Special Session, Winter AMA, Orlando, FL, February 17.
37. Hoffman, D.L. (2017), "The Impact of Marketer-Consumer Collaborations in the IoT," paper presented in Special Session, Winter AMA, Orlando, FL, February 18.
38. Hoffman, D.L. and T.P. Novak (2016), "When Dumb Objects Become Smart, Do Smart Consumers Become Dumb?," presented at the Invited Perspectives Session, ACR Annual Conference, Berlin, Germany, October 27-30.
39. Hoffman, D.L., T.P. Novak, and H. Kang (2016), "Anthropomorphism from Self-Extension and Self-Expansion: An Assemblage Theory Approach to Interactions Between Consumers and Smart Devices," presented at the ACR Annual Conference, Berlin, Germany, October 27-30.
40. Novak, T.P. and D.L. Hoffman (2016), "Visualizing Emergent Identity of Assemblages in the Internet of Things: A Topological Data Analysis Approach," presented at the ACR Annual Conference, Berlin, Germany, October 27-30.
41. Hoffman, D.L. (2016), "Object Experiences and Object Consumers," presented at the ACR 2016 Doctoral Consortium, Berlin, Germany, October 27.
42. Hoffman, D.L. and T.P. Novak (2016), "How to Market the Consumer IoT: Focus on Experience," presented at the MSI Conference on Marketing in the Consumer Internet of Things, September 30, Washington, DC.
43. Hoffman, D.L. and T.P. Novak (2016), "A Machine Learning and Data-Driven Visualization Framework for Studying Emergent Experience in the Consumer IoT," Paper presented at the Mobile + Social: Marketing Big Data Analytics Workshop 10<sup>th</sup> Triennial Invitational Choice symposium, Lake Louise, Canada, (University of Alberta) May 14-17.

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44. Hoffman, D.L., Novak, T.P. and Kang, H. (2016), "Anthropomorphism from Self-Extension and Self-Expansion Processes: An Assemblage Theory Approach to Interactions between Consumers and Smart Devices," paper presented at the Society for Consumer Psychology Winter Conference, St. Pete Beach, FL, Feb 25-27.
45. Novak, T.P. and D.L. Hoffman (2015), "Using Topological Data Analysis to Explore Emergent Consumer Experience from Digital Interactions," keynote presentation at the Center for Complexity in Business Annual Conference, Washington, DC, November 12-13.
46. Hoffman, D.L. (2015), "Consumer Experience in the Internet of Things," presented at the MSI Board of Trustees Meeting Finding Growth in Disruption, Phoenix, AZ, November 5-6.
47. Novak, T.P. and D.L. Hoffman (2015), "Using Topological Data Analysis to Explore Emergent Consumer Experience from Digital Interactions," presented at the NYU Conference on Digital Big Data, Smart Life and Mobile Marketing Analytics, New York, NY, October 23.
48. Hoffman, D. L. and T.P. Novak (2015), "Consumer Experience in the Connected World: How Emerging Technologies are Poised to Revolutionize Consumer Behavior Research," presentation in the roundtable (Hoffman and Novak co-chairs), 2015 Association for Consumer Research, New Orleans, October 1-3.
49. Hoffman, D.L. and T.P. Novak (2015)," Consumer Experience in the Internet of Things: Conceptual Foundations," paper presented in the invited plenary session "Future Consumer Worlds: How The Internet Of Things, Avatars, Robots, Cyborgs, And Human Enhancement Technologies May Change The Face Of Consumer Psychology- And Our Concept Of What It Means To Be "Human".," 2015 Society for Consumer Psychology 2<sup>nd</sup> International Conference, June, Vienna, Austria.
50. Hoffman, D.L., T.P. Novak and H. Kang (2015), "Let's Get Closer: How Regulatory Fit Drives Feelings of Connectedness in Social Media," paper presented in the symposium, "Social Media Experience: Implications for Well-Being, Word-of-Mouth and Brand Consumption," 2015 Society for Consumer Psychology Conference, February, Ritz-Carlton, Phoenix, AZ.
51. Hoffman, D.L. (2014), "Marketing in the Internet of Things," MSI Immersion Conference, Boston, MA, September 18-19.

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52. Hoffman, D. L. & T.P. Novak (2014), "The Gamification of Smart Devices: Some Preliminary Thoughts on Concepts and Constructs," Winter AMA Pre-Conference Event on Games, Gaming and Gamification, Orlando, FL, February 21.
53. Hoffman, D.L., T.P. Novak (2013), "The Social Life of Content: How Negative Motivations Can Lead to Positive Feelings in Social Media," MSI Conference on Social Media and Social Networks: What Are They Good For, Boston, MA, December 3-4.
54. Hoffman, D.L., T.P. Novak (2013), "Two Paths to Feeling Close and Connected in Social Media," Advertising and Consumer Psychology Conference, San Diego, CA, June 13-15.
55. Mintz, O. and D.L. Hoffman (2012), "The Impact of Strategic, Market, and Metric Orientation on Social Media Metric Use and Social Media Marketing Performance," Direct/Interactive Marketing Research Summit, Las Vegas, NV, October 13-14.
56. Novak, T.P. and D.L. Hoffman (2012), "Online Experience in Social Media: Two Paths to Connectedness," Association for Consumer Research, Vancouver, BC, October 4-7.
57. D.L. Hoffman, T.P. Novak and R. Stein (2012), "Predicting Identification with Social Media Groups: Flourishing Independents or Languishing Interdependents," Behavioral Decision Research in Management Conference, Boulder, CO, June 27-29.
58. D.L. Hoffman, T.P. Novak and R. Stein (2012), "Predicting Identification with Social Media Groups: Flourishing Independents or Languishing Interdependents," ISMS Marketing Science Conference, Boston, MA, June 7-9.
59. T.P. Novak and D.L. Hoffman (2012), "Relatedness Need Satisfaction During Social Media Goal Pursuit: The Influence of Online Social Identity and Motivations," Conference of the International Communication Association, Phoenix, AZ, May 24-28.
60. D.L. Hoffman and T.P. Novak (2012), "Need Satisfaction from Interacting with People Versus Content: The Roles of Motivational Orientation and Identification with Social Media Groups," Society for Consumer Psychology Annual Conference, Las Vegas, NV, Feb 16-18.
61. D.L. Hoffman, T.P. Novak, and R. Stein (2012), "The Determinants of Online Social Identity," Society for Consumer Psychology Annual Conference, Las Vegas, NV, Feb 16-18.
62. D.L. Hoffman and T.P. Novak (2012), "Need Satisfaction During Social Media Goal Pursuit: The Role of Motivational Orientation and Identification with Online Social

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Groups,” Annual Meeting of the Society for Personality and Social Psychology, San Diego, CA, January 26-28.

63. D. L. Hoffman (2011), “MSI 50<sup>th</sup> Anniversary Special Session in Support of Consumer Behavior Research,” Association for Consumer Research North American Conference, St. Louis, MO, October 13-16, 2011.
64. D.L. Hoffman and T.P. Novak (2011), “Beyond Facebook: Emerging Trends for a Post-Social Media World,” MSI Conference on Marketing in the Digital Age,” October 5, Berkeley.
65. D.L. Hoffman and T.P. Novak (2011), “Why People Use Social Media,” INFORMS Marketing Science Conference 2011, Rice University, June 9-11.
66. D. L. Hoffman and T.P. Novak (2010), “, “Retweet: A Digital Meditation on The Power of Twitter,” original film, Association for Consumer Research North American Conference, Jacksonville, FL, October 7-10.
67. D.L. Hoffman and T.P. Novak (2010), “Roles and Goals: Consumer Motivations to Use the Social Web,” INFORMS Marketing Science Conference 2010, Cologne, Germany, June 16-19.
68. D.L. Hoffman and T.P. Novak (2010), “Are Brand Attitudes Contagious? Consumer Response to Organic Search Trends,” INFORMS Marketing Science Conference 2010, Cologne, Germany, June 16-19.
69. D.L. Hoffman, T.P. Novak and J. Silva-Risso (2010), “Validating Brand Tracking Data Against Organic Brand Search Trends,” INFORMS Marketing Science Conference 2010, Cologne, Germany, June 16-19.
70. Hoffman, D.L. (2010), “Social Metrics for Social Media,” Internet Metrics Session, MSI Pre-Conference Workshop on Marketing Spending, March 1.
71. Hoffman, D.L (2010), “Session One: Allocating Across the Media Mix,” panelist, MSI Conference on Effective Marketing Spending, UCLA, March 2-3.
72. D.L. Hoffman and T.P. Novak (2009), “Are Brand Attitudes Contagious? Consumer Response to Organic Search Trends,” Google and WPP Marketing Research Awards Conference 09, New York City, November 3.

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73. Hoffman, D.L. (2009), "Navigating the Networked Rivers of the Social Web: Emerging Themes for Consumer Behavior Research on Web 2.X," ACR Roundtable, Association for Consumer Research Annual Conference, Pittsburgh, PA, October 22-25.
74. Hoffman, D.L. (2009), "The "Right" Consumers for the Best Concepts: Identifying and Using Emergent Consumers in Developing Innovations," MSI Customer Insights for Innovation Conference, University of Miami School of Business, Coral Gables, FL, June 18-19.
75. Hoffman, D.L. (2009), "Decomposing Morris: A Curious Correspondence Analysis," "Morrisfest" Symposium, Graduate School of Business, Columbia University, May 8, (Invited)
76. Hoffman, D.L. P. Kopalle, and T.P. Novak (2008), "The "Right" Consumers for the Best Concepts: A Methodology for Identifying Emergent Consumers for New Product Development," ACR North American Conference, Hyatt Regency Hotel, San Francisco, CA, October 23-26. (presenter)
77. Hoffman, D.L. (2008), "Generating Customer Insights from the "Social Web:" Are Marketers Ready to Give Up Control?," Direct Marketers Educational Foundation (DMEF) Direct/Interactive Marketing Research Summit, Las Vegas Hilton, Las Vegas, NV, October 11-12. (Invited)
78. Hoffman, D.L. (2008), "Generating Customer Insights from the 'Social Web': Are You Ready to Give Up Control?," MSI Board of Trustees Meeting and Conference on New Insights on Customer Behavior, Langham Hotel, Boston, MA, April 10-11.
79. Hoffman, D.L., P. Kopalle, and T.P. Novak (2008), "The 'Right' Consumers for Concept Development: Development and Validation of a Scale to Measure Emergent Nature," UC/USC Marketing Colloquium, University of California, Irvine, April 4. (presenter)
80. Hoffman, D.L. (2008), "The Evolution of Customer Experience: 10 Trends You Can't Afford to Miss," (presentation and panel moderator) MSI/Sloan Conference on Leveraging Online Media and Online Marketing, UCR Palm Desert Campus and Hotel Miramonte Resort, February 6-8.
81. Hoffman, D.L. (2008), "User Generated Content," MSI/Sloan Conference on Leveraging Online Media and Online Marketing, UCR Palm Desert Campus and Hotel Miramonte Resort, February 6-8.

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82. Hoffman, D.L. (2007), "Cognitive Augmentation: Can the Internet Make You Smarter and More Creative?" Sloan Center for Internet Retailing Networking Workshop, Riverside, CA, May 3-4.
83. Hoffman, D.L. and Novak, T.P. (2006), "Subject Recruitment and Panel Management: Experience and Observations Based on our Work Creating eLab and eLab 2.0," ACR Roundtable on Doing Better Web-Based Research, ACR North American Conference, Orlando, FL, September 28-October 1. (presenter)
84. Hoffman, D.L. (2006), "Perspectives on Marketing in the Electronic Marketplace: Challenges and New Directions for Research and Instruction," Technology and Innovation SIG Special Session, AMA Summer Marketing Educator's Conference, Sheraton Chicago Hotel and Towers, Chicago, IL, August 4-7, 2006.
85. Hoffman, D.L. (2005), "A Decade of Empirical Research Regarding the Internet," ACR Doctoral Symposium, San Antonio, TX, September 29."
86. Novak, T.P and D.L. Hoffman (2005), "The Impact of Consumer Thinking Style on Performance: Measure of Task-Specific Experiential and Rational Cognition," Marketing Science Conference, Emory University, Atlanta, GA, June 17.
87. White, T., D.L. Hoffman, and T.P. Novak (2005), "Forgotten Favors: Biased Account Keeping in Information-Driven Consumer-Seller Relationships," Society for Consumer Psychology Winter Conference, St. Petersburg, Florida, Feb 24-28.
88. Hoffman, D. L., P. Kopalle, and T. P. Novak (2004), "Identifying and Using Emergent Consumers in Developing Radical Innovations," ACR North American Conference, Portland, October 7-10.
89. Hoffman, D.L. "A Brief Overview of eLab Research," Inaugural Partner Conference, Vanderbilt University Sloan Center for Internet Retailing, November 7, 2003.
90. Hoffman, D.L., T.P. Novak and F. Wan (2003), "The Impact of Online Product Review Characteristics on Consumer Preferences," ACR North American Conference, Toronto, October 9-12.
91. Hoffman, D.L., T.P. Novak and F. Wan (2003), "The Impact of Online Product Review Characteristics on Consumer Preferences," UCLA CIBER/CMIE Conference, Managing in the Global Information Economy, Anderson Graduate School of Management, UCLA, September 12-13, 2003.

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92. Hoffman, D.L., Novak, T.P. and Kumar, P. (2002), "How Processing Modes Influence Consumers' Cognitive Representations of Product Perceptions Formed from Similarity Judgments," Association for Consumer Research, Atlanta, October 16-20.
93. Hoffman, D.L. (2001), "Consequences of the Web for Customers and Firms: Developing A Research Agenda for Internet Marketing," Presentation at the CMIE Conference: Research Directions in the Management of the Information Economy, Anderson Graduate School of Management, UCLA, February 9.
94. Hoffman, D.L., Novak, and Schlosser (2001), "Consumer Control in Online Environments," Society for Consumer Psychology Winter Conference, Scottsdale, Arizona, February 15-17.
95. Hoffman, D.L. (2000), "An Integrative Framework for Internet Commerce," Marketing Science Institute Board of Trustees Meeting, "Marketing Knowledge in the Age of E-Commerce," Loews Coronado Bay Resort, San Diego, CA, November 2.
96. Hoffman, D.L. Novak, T.P. and Schlosser, A. (2000), "Consumer Control in Online Environments," Association for Consumer Research, October 19-22.
97. Novak, T.P., Hoffman, D.L., and Yung, Y.F. (1999), "Modeling the Structure of the Flow Experience Among Web Users: A Structural Modeling Approach," Paper presented at the Association for Consumer Research Conference, September 30 – October 3, Columbus, Ohio.
98. Hoffman, D.L. (1999), "The State of the Field: Internet Marketing" panel moderated at the 1999 American Marketing Association Summer Educator's Conference, San Francisco, CA, August 7-10.
99. Hoffman, D.L. and T.P. Novak (1997), "New Metrics for New Media: Toward the Development of Web Measurement Standards," paper presented at the Special Session: Marketing on the Internet, 1997 INFORMS Marketing Science Conference, Berkeley, CA. March 21-24.
100. Hoffman, D.L. and T.P. Novak (1997), "Web Server Log File Analysis: Scanner Data for the New Millennium," paper presented at the Special Session: Web Server Log File Analysis, 1997 INFORMS Marketing Science Conference, Berkeley, CA. March 21-24.
101. Hoffman, D.L. (1996), "Communication Models and Media Measurement in Computer-Mediated Environments: Research Issues and Challenges" INFORMS Spring Conference on Information Systems and Technology, Panel on Web and IS Research, May 7.



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102. Hoffman, D.L. (1996), "Commerce in Cyberspace: What Role for Marketing Scientists?" Panel Discussion presented at the 1996 INFORMS Marketing Science Conference, Gainesville, March 7-10.
103. Chatterjee, P., D.L. Hoffman, and T.P. Novak (1996), "Modeling Consumer Response on the World Wide Web: Implications for Advertising," paper presented at the 1996 INFORMS Marketing Science Conference, The University of Florida, Gainesville, March 7-10.
104. Hoffman, D.L. and Novak, T.P. (1995), "Measuring the Internet," Sixth Conference on Organization Computing, Coordination and Collaboration International Conference on Electronic Commerce, University of Texas at Austin IC2 Institute, October 29-31, 1995.
105. Novak, T.P. and D.L. Hoffman (1995), "Consumer Behavior in Computer-Mediated Environments: Conceptual Foundations," poster presented at the Association for Consumer Research Conference, Minneapolis, MN, October 19-21.
106. Novak, T.P. and D.L. Hoffman (1995), "Marketing in Hypermedia Computer-Mediated Environments: Propositions," paper presented at the 1NFORMS Spring 1995 National Meeting, Los Angeles, April 24-26.
107. Hoffman, D.L. (1994), "Implications of Commercializing the Internet for Marketing Theory and Practice" The Marketing Information Revolution. AMA Summer Marketing Educators' Conference, San Francisco, August 6-9; and the AMA/Vanderbilt Frontiers in Services Conference, October.
108. Hoffman, D.L. and de Leeuw, J. (1993). Benefit Segmentation and Structuring in Service Business Markets. Paper presented at the TIMS Marketing Science Conference, Washington University, March 11-14.
109. Hoffman, D.L. and Lilien, G. (1992). Assessing the Direction and Magnitude of Perceptual Bias in Relative Influence Judgments. Paper presented at the ORSA/TIMS Joint National Meeting, San Francisco, CA, November 2-4.
110. Hoffman, D.L. (1992). Measuring Customer Perceptions of Service Quality. Invited paper presented at the AMA/Vanderbilt Services Marketing Conference.
111. Hoffman, D.L. and de Leeuw, J. (1992). A Two-Stage Procedure for Analyzing Automobile Switching: The Car Challenge. Invited paper presented at the TIMS Marketing Science Conference, London Business School, July 12-15.

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112. Hoffman, D.L. and de Leeuw, J. (1992). Using Optimal Scaling to Improve Model Estimates from LISREL. Paper presented at the TIMS Marketing Science Conference, London Business School, July 12-15.
113. Hoffman, D.L. and de Leeuw, J. (1991). Linearizing Nonlinear Association with Optimal Scaling: Reducing Bias and Improving Stability in Multivariate Linear Models. Paper presented at the ORSA/TIMS Joint National Meeting, Anaheim, CA, November 3-6.
114. Steenkamp, J.-B. and Hoffman, D.L. (1991). Quantifying Brand Equity Maps. Paper presented at the Annual Conference of the Deutsche Gesellschaft für Operations Research, Stuttgart, Germany, September 4-6.
115. Hoffman, D.L. & Steenkamp, J.-B. (1991). A Judgmental Approach to the Measurement of Brand Equity. Paper presented at ORSA/TIMS Marketing Science Conference, University of Delaware and DuPont Company, March 21-23.
116. Hoffman, D.L. & Lilien, G.L. (1990). Relative Influence in Husband-Wife Decision Making: Threats to Validity in the Key Informant Problem. Paper presented at ORSA/TIMS Marketing Science Conference, University of Illinois, March 22-25.
117. Hanssens, D.M. & Hoffman, D.L. (1989). Strategic Maps for Product Portfolio Management. Paper presented at ORSA/TIMS Joint National Meeting, New York, October 16-18.
118. Hanssens, D.M. & Hoffman, D.L. (1989). Monitoring the effectiveness of marketing strategy for a product line. Paper presented at ORSA/TIMS Marketing Science Conference, Duke University, March 17-19.
119. Hoffman, D.L. (1988). A methodology for analyzing asymmetric structure in transition matrices. Paper presented at ORSA/TIMS Joint National Meeting, Denver, October 23-26.
120. Novak, T.P. & Hoffman, D.L. (1987). Graphically representing nested log-linear models through decomposition of deviance residuals. Paper presented at Psychometric Society Annual Meeting, Montreal, June 17-19.
121. Hoffman, D.L. & Novak, T.P. (1986). Analyzing square data tables with residual scaling. Paper presented at ORSA/TIMS Joint National Meeting, Miami, October 27-29.

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122. Hoffman, D.L. & DeSarbo, W. (1986). Constructing joint space maps from "pick-any/n" data: An illustration of a new stochastic unfolding model. Paper presented at TIMS XXVII International Meeting, Gold Coast City, Australia, July 21-23.
123. Hoffman, D.L. & DeSarbo, W. (1985). An unfolding choice model for binary data. Paper presented at ORSA/TIMS Joint National Meeting, Atlanta, November 4-6.
124. Hoffman, D.L. & Batra, R. (1985). Contingent effects of program environment on advertising effectiveness. Paper presented at Annual Association for Consumer Research Conference, Las Vegas, October 17-20.
125. DeSarbo, W. & Hoffman, D.L. (1985). Simple and weighted unfolding threshold models for the spatial representation of binary choice data. Paper presented at the ORSA/TIMS Marketing Science Conference, Vanderbilt University, March 6-9.
126. Hoffman, D.L. (1984), A Marketing Application of Correspondence Analysis. Paper presented at ORSA/TIMS Marketing Science Conference, University of Chicago, March 12-14.

#### **Invited University Research Seminars**

"Object-Oriented Metaphorism as a Mechanism for Understanding AI," Baruch College, Zicklin School of Business, New York City, November 1, 2019; Boston University Zoom Behavior Lab, July 29 (online seminar); Department of Marketing Fall Seminar Series, Schulich School of Business, York University, October 22, 2020 (online seminar).

"Quantifying Assemblage Theory: A Conceptual Empirical, and Data-Driven Approach to Guide Discovery," Wharton School/York University Language Lab, August 20, 2020 (online seminar).

"Reifying the Possibility Space of IoT Automation Practices: A Machine Learning Approach," Keynote, Voya Financial Colloquium: Innovation and Technology in Marketing, University of Connecticut, September 27, 2019; Baruch College, Zicklin School of Business, New York City, November 1, 2019.

"A Computational Consumer Culture Approach to Visualizing the Possibility Space of Automation Assemblages," Ivey Business School, Western University, Canada, November 2, 2018; University of Hong Kong (HKU), January 17, 2019; Boston University Marketing Department Seminar Series, February 12, 2019; Southern California Consumer Culture Community, Annenberg School, University of Southern California, March 8, 2019; John Hopkins University Carey Business School Marketing Department Seminar Series, March 20, 2019.

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"An Assemblage Theory Approach to Consumer Experience and Consumer-Object Relationships," Marketing Ph.D. Student Workshop, University of Hong Kong (HKU), January 22, 2019.

"Mining the Secret Life of Objects," University of Hong Kong (HKU), Visiting Scholar Presentation, January 17, 2019.

"A Computational Social Science Framework for Visualizing Emergent Consumer Experience from IoT Interaction Data," Stanford Graduate School of Business Marketing Department Seminar Series, February 13, 2018; Temple University Data Science Institute Seminar Series, April 10, 2018; University of California Berkeley Haas School of Business Marketing Department Seminar Series, April 23, 2018; UCSD Rady School Marketing Department Brown Bag Seminar Series, May 9, 2018; UCI Marketing Department Seminar Series, June 8, 2018; University of Geneva, School of Economics and Management, June 21, 2018.

"Send 'Her' My Love: A Circumplex Model for Understanding Relationship Journeys in Consumer-Smart Object Assemblages," York University, September 29, 2017.

"Consumer and Object Experience in the IoT: An Assemblage Theory Perspective," Georgetown University Marketing Department Research Seminar Series, November 4, 2016; UCSD Rady School of Management Marketing Department Research Seminar Series, March 16, 2017; University of Maryland Marketing Department Research Seminar Series, March 29, 2017; Virginia Tech Northern Virginia Center Marketing Department Research Seminar Series, March 31, 2017; University of Illinois marketing Department Research Seminar Series, April 21, 2017.

"Emergence from Interaction in the Consumer Internet of Things: An Assemblage Theory Approach," Marketing Research Symposium, Lazaridis School of Business and Economics, Wilfrid Laurier University, April 21, 2016.

"Online Experience in Social Media: Two Paths to Connectedness," Department of Marketing, Goethe-University in Frankfurt/Main, September 14, 2012.

"Beyond Facebook: Friendly Devices" Stanford SIEPR Policy Forum, Social Media and the Connected Economy, Stanford University, November 18, 2011.

"Augment Me: Marketing Strategies for a Post-Social Media World" Baker Speaker Series, Wharton School, University of Pennsylvania, September 29, 2011.

"Why People Use Social Media: How Online Social Identity and Motivations Influence the Experience of Being Connected," University of Miami School of Business Department of Marketing Seminar, October 5, 2010; University of Pittsburgh Katz School of Business

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Department of Marketing Seminar, July 8, 2011; Wharton School, University of Pennsylvania, September 30, 2011.

"Are Brand Attitudes Contagious: Consumer Response to Organic Search Trends," University of Notre Dame Mendoza College of Business Marketing Department Seminar, December 4, 2009; University of Washington Marketing Foster School of Business Marketing Seminar Series, February 12, 2010; University of Miami School of Business Department of Marketing Seminar, October 5, 2010; University of Southern California Marshall School of Business Marketing Seminar Series, September 17, 2010.

"Consumer Thinking Style, Task Congruence, and Performance: New Measures of Task-Specific Experiential and Rational Cognition," Distinguished Speaker Series, College of Management, Georgia Institute of Technology, Atlanta, GA, October 20, 2005; Stellner Scholar Distinguished Guest Lecture presented at the College of Business, University of Illinois, Champaign Illinois, November 18, 2005; Invited Seminar, University of California, Riverside, December 8, 2005.

"Identifying and Using Emergent Consumers in Developing Radical Innovations," Distinguished Speaker Series, College of Management, Georgia Institute of Technology, Atlanta, GA, October 20; Stellner Scholar Distinguished Guest Lecture presented at the College of Business, University of Illinois, Champaign Illinois, November 18; Invited Seminar, University of California, Riverside, December 8; 2005; Sloan Industry Studies Centers' Annual Conference, Georgia Institute of Technology, April 19-21, 2004; Tuck Marketing Seminar Series, Dartmouth University, March 19, 2004.

"The Impact of Online Product Review Characteristics on Consumer Preferences," Graduate School of Management, University of California, Irvine, July 8, 2003.

"Research Directions for E-Commerce," Anderson Graduate School of Management, UCLA, February 2001.

"The Internet is a New Marketing Paradigm" Graduate School of Business, Stanford University, July 12, 2000; Haas School of Business, Berkeley, July 25, 2000 (with T.P. Novak)

"Integrating the Internet into Scholarly Research Paradigms," Marketing Seminar, Stern School of Business, New York University, March 4-5, 1999 (with T.P. Novak)

"Modeling the Structure of the Flow Experience Among Web Users," Information Systems/Marketing Seminar, Stern School of Business, New York University, March 4-5, 1999. (with T.P. Novak)

"Measuring the Flow Experience Among Web Users" Stanford Marketing Camp, July 17-20, 1997. (with T.P. Novak)

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"Marketing In Computer-Mediated Environments: Research Issues and Challenges," CRITO, University of California at Irvine, May 3, 1996 (with T.P. Novak)

"Marketing in Hypermedia Computer-Mediated Environments: Implications for Commercialization of the World Wide Web" Interval Research Corporation, October 1994; Stanford University Marketing Seminar, August 3, 1995. (with T.P. Novak)

"Graphical Models of Consumer Perception and Preference" University of North Carolina, November 1992.

"Maximizing Customer Satisfaction Through Market-Driven Quality," University of Texas at Dallas, March 1992; Vanderbilt 1992

"Asymmetric Residual Maps for Market Structure Analysis" Marketing Modeler's Group NY, March 1987; University of Washington, December 1988; Fourth Annual Texas Universities' Marketing Faculty Research Colloquium, Texas A&M University, April 4-5, 1991; Second Annual AMA ART Forum, Beaver Creek, Colorado, June 1991; University of Utah, March 1992; Carnegie Mellon University, April 1992; University of Groningen, May 1992.

"Dyadic Disagreement: An Exploratory Analysis of Household Purchase Influence and Reporting Bias," Pennsylvania State University, November 1990.

"Diagnostic Maps for Product Line Monitoring" UCLA July 1989; Columbia Summer Workshop June 1989; University of Iowa, February 1990; University of Texas at Dallas, February 1990.

"Correspondence Analysis and Related Methods" UCLA (Psychology) April 1987; University of Washington, December 1988.

"Residual scaling and the Analysis of Asymmetric Market Structure" Sixth Annual Columbia/Wharton Joint Seminar, January 30, 1987.

#### **Invited Industry and Government Seminars and Conferences**

Hoffman, D.L. (2019), "AI and the Future of Marketing: From Efficiency to Experience," Marketing Edge Board of Trustees Meeting, George Washington University School of Business, October 10.

Hoffman, D.L. (2019), "AI and the Future of Retailing: From Efficiency to Experience," New Insights on Retail Evolution from Top Universities, ShopTalk 2019, March 3.

Hoffman, D.L. (2018), "The IoT: Opportunities and Challenges," Presentation to the StarTech.com Marketing Roundtable, Ivey Spencer Leadership Centre, Ivey Business School, Western University, Canada, November 1.

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Novak, T.P. and D.L. Hoffman (2018), "A Computational Social Science Framework for Representing Emergent Consumer Experience," Presented at Ayasdi, Inc., Menlo Park, CA, May 22.

Novak, T.P. and D.L. Hoffman (2018), "A Computational Framework for Visualizing the Possibility Space of Emergent Consumer Experience," Presented at IFTTT, San Francisco, CA, April 24.

Hoffman, D.L. (2017), "The Impact of the Internet of Things on Consumers and Business," Keynote presentation at the EFMI Vision on Food Congress 2017, Theme: "Food for Thought," Kasteel De Vanenburg, Putten, Netherlands, May 23.

Novak, T.P. and D.L. Hoffman (2016), "Using Topological Data Analysis (TDA) to Visualize Interaction Events from IFTTT Recipes and Smart Home Sensors," Presented at Ayasdi, Inc., Menlo Park, CA March 10.

Hoffman, D.L. and T.P. Novak (2016), "How to Market the Smart Home: Focus on Emergent Experience, Not Uses Cases," Presented at CBS Interactive, San Francisco, CA, March 11.

Hoffman, D.L. (2016), "How to Market the Smart Home: Focus on Emergent Experience, Not Use Cases," Presented at Brite '16, Columbia University, NY, NY, March 7.

Novak, T.P. and D.L. Hoffman (2015), "Exploring Emergent Consumer Experience: A Topological Data Analysis Approach," Presented at IFTTT, San Francisco, CA, November 25.  
"The Digital Customer," Discussion, 2012 SAP CEO Event, March 16, 2012.

"Are Brand Attitudes Contagious: Consumer Response to Organic Search Trends," Paper presented at the Google/WPP Marketing Research Awards, November 3, 2009.

"What is Web 2.0?" Business Leaders Roundtable, UCR Palm Desert Graduate Center, March 12, 2009.

"Emergent Consumers Can Help Develop Successful Future Ideas," Discussion Paper presented at the NSF GENI Opt-In Workshop, Charles Hotel, July 20-21, 2008 (Presenter. Co-authored with T.P. Novak)

"Examining How the "Social Web" is Creating New Opportunities – And Possible Threats," eTail 2008, JW Marriott Desert Springs, Palm Desert, CA, February 11-14, 2008.

"The Evolution of Customer Experience: 10 Trends You Can't Afford to Miss," Shop.org Annual Summit, Mandalay Bay Resort, Las Vegas, NV, September 17-19, 2007.



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"The Evolution of Customer Experience: 10 Trends You Can't Afford to Miss," MarketLive E-Commerce Summit, Fairmont Sonoma Mission Inn, Sonoma, CA, June 18-20, 2007.

"How to 'Lock in' Your Customers ... and Lure Them Away from Competitors," Panel Presentation at the 2005 Shop.org Annual Summit, Las Vegas, NV, Sept 12-14, 2005.

"Managing the Customer Chain: From Theory to Practice," Presentation to the Nashville Technology Council, Tech Roundtable, October 2, 2003.

"Do You Really Understand Your Customers," Panel Presentation at the 2003 Shop.org Annual Summit, New York City, Sept 24-26, 2003.

"The Consumer Experience: A Research Agenda Going Forward," FTC Public Workshop 1: Technologies for Protecting Personal Information: The Consumer Experience. Panel: "Understanding How Consumers Interface with Technologies Designed to Protect Consumer Information," May 14, 2003

"eLab: A Model for Online Consumer Behavior," Keynote address, American Marketing Association EXPLOR Forum, Chicago, Nov 21-22, 2002.

"Internet Advertising: From CPMs to Results," United States Securities and Exchange Commission Portals Roundtable: Relationships Between Broker-Dealers and Web Sites, May 23, 2001.

"An Integrated Framework for Internet Commerce," Presentation at the CMIE Conference Accelerating Change in the Information Economy Anderson Graduate School of Management, UCLA, February 7-8, 2001.

"An Integrated Framework for Internet Commerce," DaimlerChrysler, Stuttgart, Germany, January 2001.

"Today's Web Consumer," Presentation to the Round Table Group E-Commerce Bootcamp, Gleacher Center, Chicago, June 26, 2000.

"Internet Commerce in Action," Presentation at the Sterling Commerce Secrets of the E-Business Masters E-Business Strategies Conference, May 8-11, 2000.

"The Internet Revolution and Consumer Privacy: Can They Coexist?" Keynote presented at the Skadden, Arps, 2000 Women's Retreat, Four Seasons Resort, Palm Beach, May 19-21, 2000.

"The Evolution of the Digital Divide: Implications for a Research Agenda," Invited presentation at the Digital Divide Seminar, Markle Foundation, February 14, 2000.

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"A Model of Stickiness," Invited paper presented at the *Industry Standard* Internet Summit 99, Ritz-Carlton Laguna Niquel, July 18-20, 1999.

"The Digital Divide: Issues for the Diffusion of Electronic Commerce," Invited paper presented at "The Digital Economy: New Research, Data, and Tools," White House Conference sponsored by NSF, the Department of Commerce and the OECD, May 25-26, 1999 (with T.P. Novak)  
"Internet Commerce in Action," Mini-Keynote presentation at the Sterling Commerce Worldwide Conference, *EC Strategies*, Chicago, May 13, 1999.

"Issues of Equity, Privacy, and Commercialism," Invited paper and moderated session presented at The Internet and the Family Conference, Annenberg Public Policy Center National Press Club, Washington, DC, May 4, 1999.

"Linking Internet Marketing with Business Practice: The State of the Field," Invited paper presented at the MSI 1998 Fall Board of Trustees Meeting: From Here to '00: Putting Our Priorities to Work, Phoenix AZ, November 5-6, 1998 (with T.P. Novak)

"Are Women Different?: Gender differences in Web Shopping Behaviors and Their Implications for Internet Business Strategy" Special Seminar, Tools for Building Relationships with the Millennium Woman, iVillage.com and Fast Company. September 24, 1998.

"The Internet Opportunity," Keynote address with Tom Novak at the Future Media Research Programme, London Business School, June 4, 1998.

"Internet Commerce: The Ever Changing Landscape," Sterling Commerce Executive Symposium in partnership with FORTUNE Conference Division "Building the Next Generation Enterprise: Reshaping Your Business with Electronic Commerce" Royal York Hotel, Toronto, Canada, May 12-14, 1998.

"The State of the Industry," Opening Keynote at the 1998 CMA Music Industry & New Technologies (MINT) Conference May 13, 1998.

"Integrating the Internet into Your Electronic Commerce Strategies," AHMA, Marcos Island, Florida, January 25-27, 1998.

"Information Privacy in the Marketplace: Implications for the Commercial Uses of Anonymity on the Web," American Association for the Advancement of Science conference, "Anonymous Communications on the Internet: Uses and Abuses," November 21-23, University of California, Irvine, 1997.

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"Measuring the Audience: Where Top Researchers Agree and Diverge" Online News Summit, New York Hilton Hotel, New York City, September 11-12, 1997.

"Privacy and Electronic Commerce," EFF/Silicon Valley Industry Briefing with Ira Magaziner on "Global Electronic Commerce and Personal Privacy Protection." August 5, 1997.

"Segmenting the Online Consumer Market: Preliminary Findings," Interval Research Corporation, Palo Alto, CA, July 31, 1997

"Measuring the Flow Experience Among Web Users" Stanford Marketing Camp, July 17-20; Interval Research Corporation, Palo Alto, CA, July 31, 1997

"Integrating the Internet into Your Electronic Commerce Strategy" Sterling Commerce Executive Symposium, Hotel Inter-Continental, Miami May 12-13, 1997.

"New Metrics for New Media: Toward the Development of Web Measurement Standards" Keynote Address, IQPC Performance Measurements for Web Sites, Hotel Nikko, San Francisco, February 24-26, 1997.

"Advertising Pricing Models for New Media," Internet Publishing and Beyond: The Economics of Digital Information and Intellectual Property, Kennedy School of Government, Harvard University, Jan 23 - Jan 25, 1997.

"Getting a Grip on Your Technology Strategy" *Fortune* 500 CEO Forum, November 14-16, 1996.

"Commerce on the Internet: Emerging Models" Future of Interactive Marketing Conference, Harvard Business School, May 22-24, 1996; Intel Corporation, Santa Clara, CA, August 12, 1996; Interdisciplinary Aspects of the Electronic Superhighway Seminar, George Washington University, School of Engineering and Applied Science, October 15, 1996.

"Envisioning the Future of Internet Marketing: Understanding the Consumer and Market Response," MIT Sloan School, September 18-19, 1996.

"Internet Research Methodology Workshop" Microsoft Corporation, September 5, 1996.

"Workshop on Flow Measurement Methodology" Interval Research Corporation, August 1, 1996

"Going with the Flow: Tapping Consumer Experience on the Net" Spotlight Executive Conference Directing the Future of Interactive Media, July 28-30, 1996.

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"New Metrics for New Media" Netscape Communications Corporation, July 18, 1996.

"Who Is On the Net?: Implications for Commercial Development," Interval Friday Forum, Interval Research Corporation, Dec. 15 1995; Netscape Communications Corporation, April 18 1996; Stanford Breakfast Briefing Series, July 11, 1996; University of Santa Clara, July 15, 1996.

"Consumer Data and Demographics" Wharton Forum on Electronic Commerce, May 9-10, 1996.

"Leveling the Playing Field: Mass Communication vs. Mass Media," presentation at the Sixth Conference on Computers, Freedom, & Privacy, March 27-30, 1996.

"Commercial Scenarios for the Web: Opportunities and Challenges" Interval Internet Symposium, Interval Research Corporation, February 23 1995; Harvard Business School Colloquium, Multimedia and the Boundaryless World, November 15-17, 1995.

"What Is the Internet and How Can It Help Your Business?" CABLE, Loews Vanderbilt Plaza, October 11, 1995.

"Understanding the Internet Audience "Keynote Address, Net Profits: Doing Business on the Internet, Sheraton Palace, San Francisco, August 1-2, 1995. *[ranked in top 3 of speakers, with Ted Leonsis, President, AOL and Scott Cook, Chairman, Intuit]*

"Business Models that Work on the Net," Net Profits: Doing Business on the Internet, August 1-2, 1995; InterAct '96.

"Measurement Implications of the Internet," Bellcore Measurements Research Symposium, May 18, 1995.

"Correspondence Analysis and Related Methods" 192nd American Chemical Society Meetings, September 1986; First Annual AMA ART Forum, Incline Village, Nevada, June 1992.

"Program Impact: The Key Measure of Audience Response" Beyond Ratings Conference, Columbia University, October 19, 1984.

### **George Washington University Research Seminars and Events**

GWWIB (Women in Business) Panel on Marketing and Advertising, Moderator, April 1, 2023.

"How the Internet of Things is Going to Change Everything," George Talks Business, February 25, 2019. <https://business.gwu.edu/george-talks-business>

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"How to Market the Consumer IoT: Focus on Experience," GWSB Board of Advisors Presentation, September 23, 2016.

"The Center for the Connected Consumer," GWSB Faculty Meeting Presentation, January 23, 2015.

"Consumer Experience in the Smart Home: An Assemblage Theory Perspective," GWSB Marketing Department Brownbag, February 20, 2015.

"The Social Life of Content: How Introjected Motivation Leads to Feeling Close and Connected in Social Media," GWSB Research Brownbag, Dec 12, 2013.

#### **UC Riverside Research Seminars and Events**

"Sloan Center Overview," Sunstar Delegation Visit to AGSM, Alumni Center, April 16, 2008.

"The Evolution of Customer Experience: 10 Trends You Can't Afford to Miss," Back to Class, UC Riverside Homecoming 08, February 23, 2008.

"The Search for Significance: Emergent Nature and Concept Development," MAMA, November 13, 2007.

"How to "Lock in" Your Customers and Lure Them Away From Competitors," CUC Alumni Breakfast, February 28, 2007.

"The Sloan Center for Internet Retailing and eLab 2.0," AMA Student Club Meeting, UC Riverside, November 1, 2006.

"eLab 2.0 Online Research," MAMA, Department of Psychology, October 30, 2006.

#### **Vanderbilt University Events**

"Can We Live Without the Internet? Pondering the Implications of Internet Indispensability," VU Commencement Faculty Seminar, May 12, 2005.

"Privacy on the Internet: Key Ethical Issues and Challenges," Cal Turner Program for Moral Leadership in the Professions, Student Discussion Series: Professions and Privacy, Feb 18, 2005.

"E-Commerce at the Owen School," Faculty Presentation at Diversity Weekend, December 1, 2001.

Owen Strategic Planning On-Site Retreat, Owen Corporate Council, November 8, 2001.

"Electronic Commerce at Owen and the Vanderbilt eLab Initiative," Invited presentation to the IBM Industry Solutions Lab, May 24, 2000.

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"Electronic Commerce at the Owen School," Presentation to the Owen Graduate School of Management, Alumni Association Board of Directors, April 28, 2000.

"Owen's Electronic Commerce Advantage," Invited paper presented at the First Annual Scholar's Weekend, Owen Graduate School of Management, Vanderbilt University, March 25-28, 1999.

"Who's Making Money on the Internet? (Hint: It's Not Who You Think!)," Owen 7:29 Breakfast Group, Ingram Industries, March 25, 1998.

"The Revolution Will Not Be Televised" Vanderbilt Alumni Reception, Capital City Club, February 1995; Nashville Forum, Stadium Club, September 7, 1995.

## **TEACHING**

### **Post-Doctoral Supervision**

Hyunjin Kang (Communications, Pennsylvania State University, Ph.D. 2013)  
First placement: Assistant Professor of Communication, Wee Kim Wee School of Communication and Information, Nanyang Technological University, Singapore

Randy Stein (Psychology, Yale University, Ph.D. 2011).  
First placement: Assistant Professor of Marketing, Cal Poly Pomona.

Terry Daugherty (Communications, Michigan State University, Ph.D. 2001).  
First placement: Assistant Professor of Advertising, University of Texas at Austin.

Fang Wan (Communications, University of Minnesota, Ph.D. 2002).  
First placement: Assistant Professor of Marketing, University of Manitoba.

### **Doctoral Dissertation Committees**

Nadia Daniente (Marketing, Gies College of Business, University of Illinois, Ph.D. Expected 2021). Member. Dissertation topic : "Me, Myself, and AI: The Impact of Artificial Intelligence on Marketing and the Self."

Abishek Borah (Marketing, Marshall School of Business, USC, Ph.D. 2013. First placement : University of Washington, Seattle). Member. Dissertation topic : "Essays in Consumer Conversations in Social Media."

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Jean-François Guertin (Marketing, HEC Montreal, Ph.D. 2011. First placement : University of Sherbrooke). Member. Dissertation topic : "Three Essays on the Development, Validation and Confirmation of the Flow Construct to Investigate Navigational Web Site Experience"

Ofer Mintz (Marketing, UC Irvine, Ph.D. 2012. First placement: LSU). Member. Dissertation topic: "What Drives Managerial Use of Marketing vs. Financial Metrics and Does it Impact Performance?"

Patrali Chatterjee (Marketing, Vanderbilt University, Ph.D.1998. First placement: Assistant Professor, Rutgers University). Co-Chair. Dissertation topic: "Modeling Consumer Response in World Wide Web Sites - Implications for Advertising."

Anand Narasimhan (Organizational Theory, Vanderbilt University.1997. First placement: Assistant Professor, London School of Business) Co-Chair. Dissertation topic: "Interpretive Stance in Inchoate Industries"

Scott Eggebeen, Ph.D. Measurement, Evaluation and Statistics 1988 (Columbia).

Richard Columbo, Ph.D. Marketing 1987 (Columbia).

### **Doctoral Qualifying Committees**

Brynn Nodarse, UCR Psychology 2007 orals

Abishek Borah, USC Marshall School of Business, 2011 orals

### **Doctoral Consortia**

Co-Chair, ACR Doctoral Symposium, 2018

Faculty, AMA Doctoral Consortium, 2017

Faculty, SCP Doctoral Consortium, 2015

Faculty, ACR Doctoral Consortium, 2010

Resident Faculty, AMA Doctoral Consortium, New York University, July 29 - August 2, 1987

### **Courses**

*Undergraduate:* AI and Marketing Strategy; Marketing Strategy: Based on First Principles and Data Analytics; Integrated Marketing Communication

*MBA Program:* AI and Marketing Strategy; Marketing Strategy: Based on First Principles and Data Analytics; Integrated Marketing Communication; Marketing Strategy and Planning; Digital



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Commerce Strategy; Strategic Brand Management; New Product Development; Product Management; Internet Marketing Strategy; Managing the Internet Retailing Customer Chain

*EMBA Program:* Marketing Management (Core); Marketing Planning (Marketing II)

*Doctoral Seminars:* Marketing in Computer-Mediated Environments; Online Consumer Behavior; Nonlinear Multivariate Analysis of Marketing Data

### **Executive Teaching**

*Stanford University Professional Education Executive Programs*

Market Strategy for Technology-Based Companies

Faculty, Marketing on the Web I & II, 1996: April 17-19; October 23-25; 1997: April 23-25; October 29-31; 1998: March 18-20.

*Columbia Business School Executive Programs, Arden House*

Case Discussion Leader, Marketing Management Program 1985-1989

Faculty, Marketing Research Program 1985

Assistant Director, Marketing Management Program 1984-1986

*Columbia Business School Executive Programs, Special Programs Division*

Faculty, Marketing Management Program, Equitable, Inc., Morristown & Tarrytown, 1988-1989

Faculty, Marketing Management Program, Homequity, Inc., Connecticut, 1985

### **SERVICE**

#### **Editorial Activities**

##### **Editor**

*Journal of Marketing*, Special Issue Co-Editor, "New Technologies and Marketing," 2019-2021

*Marketing Intelligence Review: IoT Experiences*, Co-Editor, 2018

*Journal of Interactive Marketing*, Special Issue Editor, "Social Media," 2011

*Information Systems Research* (Marketing area), Special Issue Editor, 2000-2001

*Marketing Science*, Special Issue Editor, "Marketing Science and the Internet," 1999-2000

##### **Departmental Editor**

*Electronic Commerce Research* (Marketing Department)

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### **Associate Editor**

*Journal of Marketing*, summer 2018-present  
*Journal of Consumer Research*, 2020-2022  
*Journal of Marketing Research*, Guest AE on multiple manuscripts

### **Editorial Boards**

*Journal of Marketing* -through 2018  
*Journal of Consumer Research*, - Dec 2020, 2022-present  
*Journal of Marketing Research* (2012-)  
*Journal of Consumer Psychology*, (-present)  
*Journal of Interactive Marketing*, Editorial Board founding member 1996-present  
*International Journal of Electronic Commerce*, 1995-present  
*Social Science Research Network*, 2002-present (Advisory Board)  
*International Journal of Marketing Education*, 2002-present

### **Advisory Panels**

Society for Consumer Psychology, 2012-2015

### **Past Memberships**

Journal of Electronic Commerce (Founding Member), Marketing Letters (member of Academic Advisory Board and former member of Editorial Board), Marketing Science (off in 2002), EC World (Founding Member), Managerial Marketing Abstracts, Marketing Research Network

### **Ad Hoc Reviewing**

*Journal of Consumer Research*, *Academy of Management Review*, *Management Science*, *Marketing Science*, *Communications of the ACM*, *Journal of Computer-Mediated Communication*, *Journal of Marketing*, *Journal of Marketing Research*, *Psychometrika*, *International Journal of Research in Marketing*, *Applied Psychological Measurement*

### **Conference Reviewing**

2022, Society for Consumer Psychology  
2021, ACR Annual Conference  
2020 ACR Annual Conference, Associate Editor  
2015 Society for Consumer Psychology International Conference  
2009 ACR Asia-Pacific Conference (reviewed in 2008)  
Society for Consumer Psychology 2008, 2009, 2010, 2011

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ACR Annual Conference 1991, 1992, 1999, 2000, 2002, 2003, 2004, 2005, 2008, 2010  
AMA Summer Educator's Conference, 1989, 1990, 1991, 1992  
AMA Winter Educator's Conference, 1991, 1992, 1993, 1994, 1995

### **Other Significant Reviewing**

#### *Grants*

National Science Foundation (various programs)

#### *Research Competitions*

John A. Howard American Marketing Association Dissertation Competition, Blue Ribbon Panel, 2015  
John A. Howard American Marketing Association Dissertation Competition, numerous years-present  
Marketing Science Institute Alden Clayton Doctoral Dissertation Competition, numerous years, 2006-present  
MSI - Journal of Marketing Research competition on "Practitioner-Academic Collaborative Research"  
SCP Doctoral Dissertation Competition, numerous years, 2006, 2007, 2008

#### *Research Reports*

National Research Council Computer Science and Telecommunications Board  
ETS Scholastic Achievement Test, Irwin

### **Conference Organization**

#### **Conference Chair**

GWSB Inaugural Conference on the Intelligence of Things: Year 1: Research Opportunities and Challenges, April 5, 2019 (Co-Chair)

Association for Consumer Research Doctoral Symposium, Dallas, TX. October 11, 2018 (Co-Chair)

MSI Conference on Marketing in the Consumer Internet of Things, Washington, DC, September 30, 2016 (Co-Chair)

Direct/Interactive Marketing Research Summit, Las Vegas, NV, October 13-14, 2012 (Co-Chair)

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Marketing Science Institute/Sloan Center for Internet Retailing Leveraging Online Media and Online Marketing, UC Riverside Palm Desert Campus and Hotel Miramonte Resort, February 6-8, 2008 (Co-Chair)

Association for Consumer Research Pre-Conference Consumers Online: Ten Years Later, October 25, 2007 (co-chair)

UCR Sloan Center for Internet Retailing Research Networking Workshop, May 3-4, 2007

AGSM Deliberative Dialogue Conference Featuring Duke University Professor Richard Staelin, April 6, 2007

Inaugural Partner Conference, Vanderbilt Sloan Center for Internet Retailing, 2003 (co-chair)

First INFORMS Marketing Science and the Internet Conference, Co-Chair, 1998

Second Annual Columbia Summer Marketing Workshop: Arden Homestead 1989

Sixth Annual Columbia/Wharton Joint Seminar: Columbia University, 1987

Columbia Center for Telecommunications and Information Studies, "Beyond Ratings: New Directions in Audience Measurement Research": Columbia University, 1984.

### **Session/Track Chair**

ACR North America (special session organizer); San Diego, CA 2017

Winter AMA (special session organizer); Orlando, FL, 2017

SCP (symposium organizer); St. Pete Beach, 2016

ACR North America (special session/roundtable organizer); New Orleans 2015

SCP (special session organizer); Phoenix, 2015

INFORMS Marketing Science Conference (track co-organizer); Atlanta 2014

INFORMS Marketing Science Conference (track co-organizer); Istanbul, 2013

INFORMS Marketing Science Conference (track co-organizer); Boston, 2012

ACR North America (MSI Special Session organizer, with Punam Anand Keller), St. Louis, 2011.

ACR North America (roundtable organizer), Pittsburgh, 2009.

ACR North America Conference (special session organizer), Portland, 2004.

ACR North American Conference (special session organizer); Toronto, 2003.

AMA Summer Educator's Conference (panel organizer); San Francisco, 1999

INFORMS Marketing Science Conference (panel organizer); Berkeley, 1997

INFORMS Marketing Science Conference (panel organizer); Gainesville, 1996

INFORMS Spring National Meeting (session chair); Los Angeles, 1995

TIMS XXX-Sobrapo XXIII Joint International Meeting (track chair): Rio de Janeiro 1991

ORSA/TIMS Marketing Science Conference (session chair): Berkeley 1997; Gainesville 1996;

Tucson 1994; Seattle 1988; Dallas 1986; Nashville 1985

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ORSA/TIMS Joint National Meeting (session chair): Denver 1988; Miami 1986; Anaheim 1991  
Los Angeles 1995  
ACR Annual Conference (special session chair): Las Vegas 1985

### External Administrative Service

Chair, External Review Committee, Five-year Review, Center for Research on Information  
Technology and Organizations (CRITO), University of California, Irvine, 2004

### Professional Affiliations and Memberships

Association for Consumer Research, American Marketing Association, INFORMS (member,  
Society for Marketing Science), Industry Studies Association (Founding member, 2009-present),  
Society for Consumer Psychology

Past memberships: Association for Computing Machinery, Classification Society of North  
America, CommerceNet, Psychometric Society

### Membership in Professional Organizations

#### Elected Positions

2021-2022	AMA CB Sig, Past Chair
2020-2021	AMA CB Sig, Chair
2019-2020	AMA CB Sig, Chair-Elect
2018-2019	<i>Journal of the Association for Consumer Research</i> , Policy Board Chair
2017-2020	Perspectives Director (Industry) Association for Consumer Research Board of Directors
1998-1999	Past-President, INFORMS Section on Marketing (former name)
1996-1997	President, INFORMS Section on Marketing
1994-1995	President-Elect, TIMS College on Marketing
1992-1993	Secretary-Treasurer, TIMS College on Marketing
1992-1993	Editor, TIMS College on Marketing Newsletter (published quarterly)
1992-1999	Council Member, TIMS College on Marketing Advisory Council
1995	Program Chair, American Statistical Association, Section on Marketing
1994	Program Chair-Elect, American Statistical Association, Section on Marketing

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### **Program Committee**

ACM Conference on Electronic Commerce EC'08 2008  
Association for Consumer Research (ACR) Annual Conference, multiple years 1992-present  
Computers, Freedom, & Privacy Annual Conference 1996, 1997, 1998  
Society for Consumer Psychology (SCP) Annual Conference, multiple years-present

### **Boards and Committees**

Marketing Edge, Board of Trustees, Member, 2019-2022  
Procter & Gamble Digital Advisory Board February 2009-2013  
Marketing Science Institute, Academic Trustee 2008-2014  
Web Analytics Association, Advisory Board 2005-present  
Marketing Science Institute "Blue Ribbon" Committee, Web Survey Research Project 2004-2006  
Inc. Magazine Web Awards 2001  
EFF Pioneer Awards Judge 2001, 2002, 2003, 2004, 2005  
Prize for Promise (nominator) 2002  
Qbiquity, Advisory Board 2001  
Internet Policy Institute 2000  
eConception, Director 1999-2000  
Credible.org, Advisory Board 1999  
Standard for Internet Commerce, Founding Member 1999  
GII Awards, Final ("Blue Ribbon") Judge, Business Category 1996-1999  
AAAS Project (NSF) on Anonymous Communications on the Internet, Advisory Committee 1996-1997  
Associate Member, CommerceNet; member, Marketing Working Group 1994-2000

### **Professional Experience**

Summer Visiting Scholar, Interval Research Corporation, 1995-1999  
Research Associate, Columbia Business School Institute for Tele-Information, 1984-1985  
Social Science Analyst, Research Triangle Institute, Research Triangle Park, North Carolina, 1980-1981

### **Strategic Consulting**

Bellcore, Bell Northern Research/Northern Telecom, Cohen, Klingenstein & Marks Inc., Daimler-Benz, Federal Reserve Board Electronic Payments System Panel, Hewlett-Packard, HotWired, Impact Planning Group, Intel Corporation, Interval Research Corporation, Kantar Futures Practice, Microsoft Corporation, Nashville Chamber of Commerce, Netscape Communications Corporation, Nielsen Media Research, Ogilvy & Mather, Procter & Gamble, (r)evolution partners, Reinault-Thomas, SBC, Starwave, Stratford Associates, Television Audience Assessment, Inc.

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### Expert Witness

- Written Affidavit and Deposition for the defendant, Fall 2022-Spring 2023, Google Play Store Antitrust Litigation, Case No. 3:21-md-02981-JD.
- Written Affidavit and Deposition for the defendant, Spring and Summer 2022, State of Arizona, *ex. rel.* Mark Brnovich, Attorney General v. Google LLC, a Delaware Limited Liability Company, Case No. CV2020-006219.
- Written Affidavit and Deposition for the plaintiff, Spring 2019, The Reinalt-Thomas Corporation d/b/a Discount Tire, vs Mavis Tire Supply LLC, Case 1:18-cv-05877-TCB
- Written Affidavit for the defendant, 2015, Federal Trade Commission v. Amazon.com, Inc., Case No. 2:14-CV-01038-JCC
- Written Affidavit and Deposition for the plaintiff, Summer 2012, The Reinalt-Thomas Corporation d/b/a Discount tire, a Michigan corporation v. AKH Company, Inc, a California corporation, No. 2:10-cv-01055-JWS
- Written Affidavit and Deposition for the defendant, Fall 2009, Autodesk, Inc. vs. Dassault Systèmes SolidWorks Corporation
- Written Affidavit for the plaintiff, Winter 2005, Ameripay, LLC v. Ameripay Payroll Ltd, US District Court for the Northern District of Illinois, Eastern Division.
- Written Affidavits for the defendant, Spring 2003, Verizon v. Showalter
- Written Affidavit for the defendant, Fall 2001, PowerAgent v. EDS.
- Written Affidavit and Deposition for the defendant, Spring 2001, Amway Corporation v. P&G, US District Court, Western District of Michigan, Southern Division.
- Written Affidavit and Testimony (January 20, 1999) for the plaintiffs in the Federal trial, ACLU v. Reno, challenging the constitutionality of the Child Online Protection Act (COPA). Lead Witness.
- Written Affidavit for the plaintiff, Orman, et.al. v AOL, Inc. (April 30, 1998).
- Written Affidavit and Testimony (March 22, 1996) for the plaintiffs in the joined Federal trials, ACLU v. Reno and ALA v. Reno, challenging the constitutionality of the Communications Decency Act (CDA) portion of the Telecommunications Bill of 1996.

### UNIVERSITY AND PRIVATE FOUNDATION GRANTS & CORPORATE GIFTS

Co-Founder and Co-Director, Sloan Center for Internet Retailing (2003-present) and eLab (1994-present.). Professor Tom Novak and I founded eLab/Project 2000 in 1994 to conduct scholarly research in Internet marketing and e-commerce. In March 2003, the Alfred P. Sloan Foundation awarded a grant establishing the Vanderbilt University Sloan Center for Internet Retailing. The Center moved to the University of California, Riverside, in July 2006.



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From 1994-2006, we raised over \$3 million in Sloan Center and eLab funding from the sources below:

***Corporate Funding (\$932,000 Project 2000/eLab; \$450,000) Sloan Center for Internet Retailing):***

CDnow, Daimler-Chrysler, FedEx, the Freedom Forum, Digeo, Financial Services Technology Consortium, First Horizon, Focalink, Gaylord Entertainment, HotWired Ventures LLC, Hewlett-Packard, Ingram Entertainment, Interval Research Corporation, iVillage, J.C. Bradford, Land's End/Sears, NCR Knowledge labs, Neomodal, Netscape, Nielsen Media Research, O'Reilly & Associates, Pitney Bowes, Roche-Diagnostics, Rouse Company, SBC, Shop at Home, Shop.org, Sprint, Sterling Commerce, Sun Microsystems, Vulcan Ventures, VF Corporation, Walmart.com, Yankelovich Partners.

***Foundation and Government Grants (\$565,000):***

Alfred P. Sloan Foundation, American Association for Advancement of Science, The Aspen Institute, The Freedom Forum First Amendment Center, Marketing Science Institute, John and Mary R. Markle Foundation, National Science Foundation

***University Grants (\$1,075,000):***

Vanderbilt University Central Administration, Vanderbilt University Research Council, Vanderbilt University Medical Center

***The Sloan Center for Internet Retailing moved to UC Riverside in July 2006.***

***Corporate Gifts***

Newsfutures 04/2007	In-kind
GSI Commerce 12/2007	\$5,500
Organize.com 12/2007	\$5,000
Procter & Gamble 09/2008	\$5,000
Miller Coors 09/2008	\$10,000
Hershey 09/2009	\$ 5,000

***UC Riverside Academic Senate Omnibus Grant***

2012	\$1150
2011	\$1400
2010	\$630
2009	\$1000
2008	\$1500
2007	\$1607

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## **George Washington University Administrative Service**

### **University**

GW University Honors Program Advisory Committee, member, Fall 2014-2017

### **GWSB**

SWAPT, Member Fall 2021-present

Dean's Covid 19 Response Advisory Task Force Spring 2020

MBA Curriculum Taskforce, 2019

Research Committee, Spring 2017, 2018-2020

SWAPT, Member Fall 2015-Spring 2017

Strategic Planning Committee, Cross-Disciplinary Taskforce Spring 2015

### **Marketing Department**

Department Chair, 2017

APT Chair, Spring 2014-Spring 2016

## **UC Riverside Administrative Service**

### **Department**

AGSM Department of Management and Marketing Department Chair, 07/1/2006-6/30/2011

Marketing Area Recruiting Search Committee, Chair, 2006-2007

Management Area Recruiting Search Committee, Ex-Officio Member, 2006-2007

Marketing Area Recruiting Search Committee, Ex-Officio Member, 2007-2008

Management Area Recruiting Search Committee, Ex-Officio Member, 2007-2008

Management Area Recruiting Search Committee, Chair, 2008-2009

Marketing Area Recruiting Search Committee, Ex-Officio, 2008-2009

First Annual AGSM Marketing Camp, May 9, 2008

### **College**

Soba Faculty Mentor to Student American Marketing Association Club, 2012-present

AGSM Strategic Planning Committee, 2008-2009

AGSM Senior Leadership Team, 9/2007-present

AGSM Graduate Committee, 07/2006-06/2007

AGSM BASD Committee, 07/2007-2009

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### **Campus**

UCR Online Strategic Planning Committee, 2013-present  
UCR Faculty Welfare Committee, 2012-present  
UCR Strategic Planning Committee, Academic Excellence Subcommittee, 2009-2010  
UCR AGSM Dean Search Committee, 2006-2007  
UCR Senior Marketing Council, 2006-2008  
UCR School of Medicine Dean Search Committee, 2007  
UCR School of Communications Task Force Co-Chair, 2008-present

### **Vanderbilt University Administrative Service**

Faculty Senate, 1996-1999, 2004-2006  
Technology Literacy Arc Seminar, sponsored by the Center for Teaching and the Associate Provost for Innovation through Technology, 2002  
Owen Executive Committee 2004-2006  
Dean Search Committee 2004-2005  
Faculty Development Committee, 2003-2005  
Marketing Recruiting Committee, 1997, 2003-2006  
Owen Strategic Planning Committee, 2001-2002  
Marketing Area Head, 2002-2003, 2005-2006  
Chair, Marketing Recruiting Committee, 1994 (co-chair), 1999, 2001, 2002, 2004, 2005  
Coordinator, Marketing Area Ph.D. Program, 1994-2001  
Member, Owen Ph.D. Committee, 1993-2003  
Chair, Computing/Telecommunications Strategic Planning Committee, 1993-1996  
Promotion Committee, Ray Friedman, 2003  
Renewal Committee, Neta Moye, 2002  
Human Resources/Organizational Studies Search Committee, 1994  
Director, Electronic Commerce Program, 2000-2005  
Faculty Sponsor, eBusiness and Technology Club, 2000-2005  
Director & Founder, Electronic Commerce Emphasis, 1996-2000  
Faculty Advisor (Marketing area), Business Projects Group, 1994-2000  
EMBA Curriculum Committee 2002-2003  
Committee on Instruction, 1997-2000

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#### **UT Dallas Administrative Service**

School of Management Executive Education Committee, 1991-1992  
School of Management Teaching Committee, 1991-1993  
University Committee on Faculty Standing and Conduct, 1991-1993

#### **Columbia Business School Administrative Service**

Marketing Faculty Recruiting Coordinator, 1988  
Marketing Faculty Search Committee, 1988; 1986  
Faculty Research Review Committee (Chair, 1989), 1987-1990  
Committee on Computer Use (Chair, 1987-1989), 1987-1990

#### **Selected Media Recognition**

*Business Week* "Mover & Shaker," San Francisco Webgrrls Top 25 Women on the Web,  
*Microtimes* 100, Advertising Age "Web Warrior," *c/net* "Visionary," *Internet World* "Internet  
Hero," *Newsweek* "The Net 50 People Who Matter Most on the Internet"

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## **Appendix B**

### **Materials Considered**

#### **Legal Documents**

- Declaration of Andrew Rope in Support of Defendant Google LLC’s Motion to Dismiss First Amended Complaint, Anibal Rodriguez et al. v. Google LLC, United States District Court of the Northern District of California, Case No. 3:20-CV-04688, February 25, 2021.
- Fourth Amended Complaint, Anibal Rodriguez et al. v. Google LLC, United States District Court of the Northern District of California, Case No. 3:20-CV-04688, January 4, 2023.

#### **Expert Reports**

- Expert Report of Bruce Schneier, February 20, 2023, and materials considered.

#### **Depositions**

- Deposition of Anibal Rodriguez, October 16, 2022.
- Deposition of Arne De Booij, February 7, 2023.
- Deposition of Christopher Ruemmler, September 9, 2022.
- Deposition of David Monsees, September 15, 2022.
- Deposition of Eric Miraglia, October 25, 2022.
- Deposition of Greg Fair, October 3, 2022.
- Deposition of JK Kearns, February 17, 2023.
- Deposition of Julian Santiago, March 7, 2022.
- Deposition of Sal Cataldo, February 17, 2022.
- Deposition of Sam Heft-Luthy, February 8, 2023.
- Deposition of Susan Harvey, October 27, 2022.
- Deposition of Xinyu Ye, February 9, 2023.

#### **Bates Stamped Documents**

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| • GOOG-RDGZ-00000002. | • GOOG-RDGZ-00000007. |
| • GOOG-RDGZ-00000003. | • GOOG-RDGZ-00000008. |
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- “Automatic Readability Checker,” *Readability Formulas*, available at <https://readabilityformulas.com/free-readability-formula-tests.php>.
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- “Readability Calculator,” *wordcalc*, available at <https://www.wordcalc.com/readability/>.
- “Save and Manage Search Activity,” *Google Workspace Admin Help*, available at <https://support.google.com/a/answer/11194328#zippy=%2Ccan-users-delete-or-opt-out-of-google-workspace-search-history>.
- “Technologies,” *Google Privacy & Terms*, available at <https://policies.google.com/technologies/partner-sites>.
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